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## ARMY APPRENTICESHIP PROGRAM (AAP) PHASE II - EVALUATION OF AAP SURVEY RESULTS



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ARMY APPRENTICESHIP PROGRAM EVALUATION STUDY  
PHASE II - EVALUATION OF AAP SURVEY RESULTS  
INTERIM REPORT

DEPARTMENT OF THE ARMY  
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND  
FORT MONROE, VIRGINIA 23651

TRADOC ANALYSIS COMMAND - FORT BENJAMIN HARRISON

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19. ABSTRACT <i>(Continue on reverse if necessary and identify by block number)</i> The purpose of this study is to report results of the second phase of the overall Army Apprenticeship Program (AAP) Evaluation. The second phase of the AAP Evaluation was a survey of soldiers who participated in the AAP. The objectives of the AAP survey were: to determine the motivation, attitudes, and expectations of soldiers who participated in the AAP; and to collect locator information for a future follow-up survey on soldiers after they transition into a civilian occupation. The second phase involved the development of survey instruments and the collection and analysis of survey data to determine the value of the AAP to soldiers.				
Study results revealed that soldiers who participate in the AAP enlist for reasons different than other Army soldiers (i.e., self-improvement and job/skill training). The AAP was a positive influence on AAP participants decisions to enlist. The AAP could be an effective recruiting incentive because it has the potential of positively influencing the decisions of American youth interested in job/skill training. Soldiers who participate in the AAP are primarily focused on career development. AAP participants have positive perceptions of the value of the AAP on their careers. They also believe that they have benefited more from their Army experience, and they recognize greater significance in the value of Army training and job experience than soldiers who have not participated in the AAP. Survey data on those soldiers who are preparing to separate from the Army does, however, suggest there are some problems or deficiencies in connection with the AAP. The next phase of the AAP evaluation will focus on identifying the AAP deficiencies and recommending solutions.				
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ON

ARMY APPRENTICESHIP PROGRAM EVALUATION STUDY

PHASE II - EVALUATION OF AAP SURVEY RESULTS

9 FEBRUARY 1990

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## GLOSSARY OF ACRONYMS

AAP	Army Apprenticeship Program
ACES	Army Continuing Education System
ACF	Army College Fund
ARI	Army Research Institute
BAT	Bureau of Apprenticeship and Training
DCSPAL	Deputy Chief of Staff Personnel Administration and Logistics
DOL	Department of Labor
EEA	Essential Element of Analysis
ETS	End Term of Service
FORSCOM	Forces Command
IPR	In Progress Review
MOS	Military Occupation Specialty
SQT	Skill Qualification Test
SPSS	Statistical Package for the Social Sciences
TRAC-FBHN	TRADOC Analysis Command - Fort Benjamin Harrison
USAREC	United States Army Recruiting Command
WIP	Work In Process

## ABSTRACT

The purpose of this study is to report results of the second phase of the overall Army Apprenticeship Program (AAP) Evaluation. The second phase of the AAP Evaluation was a survey of soldiers who participated in the AAP. The objectives of the AAP survey were: to determine the motivation, attitudes, and expectations of soldiers who participated in the AAP; and to collect locator information for a future follow-up survey on soldiers after they transition into a civilian occupation. The second phase involved the development of survey instruments and the collection and analysis of survey data to determine the value of the AAP to soldiers.

Study results revealed that soldiers who participate in the AAP enlist for reasons different from other Army soldiers (i.e., self-improvement and job/skill training). The AAP was a positive influence on AAP participants decisions to enlist. The AAP could be an effective recruiting incentive because it has the potential of positively influencing the decisions of American youth interested in job/skill training. Soldiers who participate in the AAP are primarily focused on career development. AAP participants have positive perceptions of the value of the AAP on their careers. They also believe that they have benefited more from their Army experience, and they recognize greater significance in the value of Army training and job experience than soldiers who have not participated in the AAP. Survey data on those soldiers who are preparing to separate from the Army does, however, suggest that there are some problems or deficiencies in connection with the AAP. The next phase of the AAP evaluation will focus on identifying the AAP deficiencies and recommending solutions.



## EXECUTIVE SUMMARY

### 1. INTRODUCTION.

a. An apprenticeship, in its simplest terms, involves scheduled on-the-job training and experience under appropriate supervisory guidance, combined with technical instruction in subjects related to the trade. As a result of a July 1975 agreement between the Secretaries of the Army and the US Department of Labor (DOL), the Army has developed apprenticeship programs for all Military Occupation Skills (MOS) considered to have civilian counterpart apprenticeship occupations, and registered them with the DOL, Bureau of Apprenticeship and Training (BAT). Currently, soldiers serving in over 180 different Army MOS can participate in the AAP.

b. The goals for the AAP are: to enable enlisted soldiers to record and document specific skills acquired on active duty; to assist military supervisors in making management decisions and work assignments based on documented work experience; to assist enlisted soldiers in obtaining civilian employment; and to provide a recruiting incentive for MOS that have related apprenticeship skills.

2. PURPOSE. The purposes of the AAP evaluation study are to identify the benefits that the AAP provides to soldiers, the Army, and the civilian work force and to evaluate the cost of offering the program. This second phase of the overall AAP Evaluation study had two objectives: (1) to determine the motivations, attitudes and expectations of soldiers who participate in the AAP and compare them to those of other Army soldiers; and (2) to collect locator information for a future follow-up survey on soldiers after they transition into civilian occupations.

3. TASKING. Deputy Chief of Staff Personnel, Administration, and Logistics (DCSPAL) request a study of the AAP. A review by DCSPAL and HQ DA staff has placed the AAP under increased scrutiny due to the lack of measures to evaluate program effectiveness. Some believe that the cost of administering the AAP outweighs the benefits obtained from offering the program.

4. STUDY PROGRESS. The study agent developed a three phase methodology that would identify the benefits that the AAP provides to soldiers and to the Army. The first phase of the study evaluated historic data on soldiers who participated in the AAP. The study agent briefed the results of the first phase of the study at the first study In Progress Review (IPR) on 24 March 1989. The results showed that soldiers who participate in the AAP:

- (1) Enlist for longer terms of service;

- (2) Have higher levels of job performance as measured by the Army's Skill Qualification Test (SQT);
- (3) Have lower attrition rates; and
- (4) Reenlist at higher rates.

AAP Evaluation final report will include these results, along with the results of the third and final phase of the evaluation. This report focuses on the second phase, or the AAP survey phase, of the overall AAP Evaluation study effort.

5. SCOPE. The second phase of the AAP evaluation consisted of the development of survey instruments and the collection and analysis of survey data to determine the value of the AAP to soldiers. The survey was designed as a census type survey. The study agent collected data from three distinct groups of soldiers: soldiers joining the AAP, designated as - (AAP Entry); soldiers in the AAP and Ending their Term of Service (ETS)-(AAP Exit); and a control group consisting of soldiers who have never participated in AAP and are ETS - (Not AAP). Education counselors at the Army Continuing Education System (ACES) centers administered the survey.

6. METHODOLOGY. In determining the differences in the motivations, attitudes, and expectations of survey recipients, the study agent used three analytical techniques to evaluate survey data: descriptive and inferential statistics; a technique that converts categorical judgements into an interval scales; and discriminant analysis.

7. CONCLUSIONS. The following are study conclusions drawn from the analysis of survey data:

a. All soldiers replied that the most important reason for their enlistment was "to better myself," followed by "to serve my country," "money for college," "for job training," "to travel" and "needed time to mature." AAP soldiers replied that self-improvement and the desire for job/skill training were significantly more important factors in their decision to join the Army. Among the reasons for enlisting, job/skill training proved to be the greatest discriminator between soldiers who have joined the AAP and those who are not in the program. Self-improvement and job/skill training are very much related and survey results suggest that AAP soldiers, to a greater extent, are focused on self-improvement through career development.

b. Soldiers attracted to the AAP had a specific vocational interest prior to enlisting. These soldiers were also more committed to obtaining the training which they wanted. Additionally, AAP soldiers were willing to forego enlistment incentives for training which they desired.

c. After they leave the Army, AAP soldiers primarily plan to go to work full-time and continue their education on a part-time basis. A greater percentage of the AAP soldiers compared to Not AAP soldiers are: planning to have a job prior to leaving the Army; more confident about their ability to secure a civilian occupation; and planning to seek civilian jobs that require similar skills mastered in the Army.

d. The largest single source of information on the AAP was the Army Education Center, followed by friends, supervisors, recruiters and lastly, the news media. New soldiers are obtaining significantly less information from the Army Education Centers and Army recruiters. Education center counselors and recruiters are not selling the program because they either "lack knowledge of" or "support for" the AAP.

e. With those soldiers who eventually joined the AAP, the AAP had a positive influence on their decisions to enlist in the Army. The AAP is not currently being used as a recruiting incentive, but has the potential of positively influencing the decisions of those soldiers interested in job/skill training.

f. Soldiers participating in the AAP replied that their completion of the program would be an important factor affecting their decision to reenlist.

g. The primary reason for joining the AAP was to document job skills, and soldiers believe that this will help them to secure a civilian job after they leave the Army.

h. There was no real consensus on why soldiers drop out of the AAP. The only reasons that emerged as positive in importance were that too much time was needed to document Work In Process (WIP) hours and that soldiers could not document WIP hours required because of the nature of their duty assignments.

i. AAP soldiers have positive perceptions of the value of the AAP. Soldiers, who are currently entering the AAP, have higher expectations of the value of the program than those soldiers exiting the program. Soldiers entering the AAP place greater value in the program's ability to assist them in their development of job knowledge, skills, and abilities and to help them obtain a civilian job after their Army service. The survey data collected on those soldiers getting ready to separate from the Army does, however, suggest that there are some problems and deficiencies in connection with the AAP. The next phase of the AAP evaluation will focus on identifying the AAP operating problems, and recommending program corrections.

j. Soldiers who are participating in the AAP believe that they have benefited more from their Army experience than soldiers who have not participated in the AAP. AAP soldiers recognize greater significance in the value of their Army training and particularly Army job experience.



## 1. Study Background

### a. Apprenticeships.

(1) "At the present moment, America has need for skilled workers, a need that will increase in the coming years." These were the words of Harry Kursh written in 1958 about our country's increasing need for skilled workers as we approached the 1960s. He warned of a shortage of highly skilled and specialized workers due to the expansion of automation. This warning is as true today as it was 30 years ago due to today's competitive industrial environment. Elizabeth Dole, the Secretary of Labor, has stated that "America's workforce is in a state of unreadiness, unready for the new jobs, unready for the new realities and unready for the new challenges of the 90's." Industry has found that one of the best ways to train young people to become skilled workers is through apprenticeships, on-the-job experience, acquired under direct supervision of a qualified craftsman.

(2) The Dictionary of Occupational Titles defines "an apprentice as a worker who is trained under direct journeyman supervision according to a prescribed or traditional series of work processes graded to coincide with increasing trade maturity, in learning a skilled occupation that requires, during the learning process, several years of reasonable continuous employment prior to the time that the worker may be considered a qualified journeyman." An apprenticeship, in its simplest terms, involves scheduled on-the-job training and experience under appropriate supervisory guidance, combined with technical instruction in a subject related to the trade.

### b. Army Apprenticeship Program.

(1) The Army's Apprenticeship Program is a prescribed period, where an individual learns a trade through on-the-job training and related instruction. As a result of a July 1975 agreement between the Secretaries of the Army and the US Department of Labor (DOL), the Army has developed apprenticeship programs for all Military Occupation Skills (MOS) considered to have civilian counterpart apprenticeship occupations and registered them with the DOL, Bureau of Apprenticeship and Training (BAT). Currently, soldiers serving in over 180 different Army MOS can participate in the AAP. The Army offers a vast variety of occupations that soldiers can apprentice in, ranging from Army cooks to mechanics to highly specialized electronic repairers. Figure 1 demonstrates the diversity of these occupations by highlighting the top ten AAP MOS.

TOP TEN ACTIVE AAP MOS'S  
38.2% ACTIVE AAP POPULATION

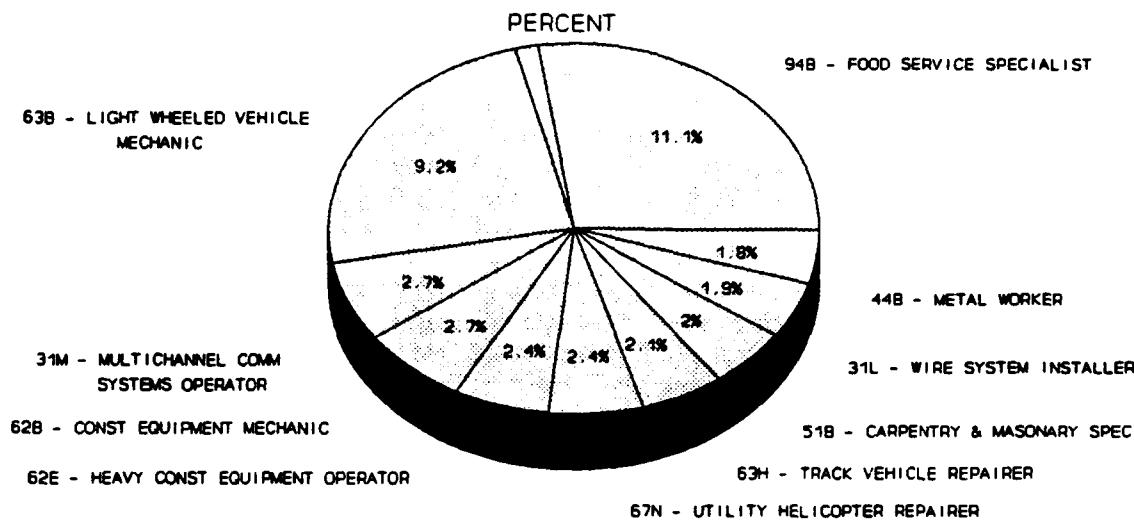


Figure 1. Top Army Apprenticeship Program Occupations

(2) The AAP provides a vehicle through which soldiers document industry-related service acquired skills in a manner acceptable to industry. The AAP serves as a training documentation system for soldiers rather than a long term training program for career soldiers. The AAP adheres to DOL standards for the required number of hours of work processes and related instruction for a trade. Soldiers serving in eligible MOS who choose to participate in the AAP are able to earn vocational credentials equivalent to those in comparable civilian occupations. Thus, there is no penalty in terms of job/skill training for serving in the Army. Soldiers who document the required work and training hours, as specified by the DOL and approved by the proponent service school, will receive a DOL certificate showing completion of the AAP. While in the Army, this AAP completion certificate becomes a permanent entry in the soldiers records. After the Army, the DOL certificate of completion should aid the soldier in the transition from military service into a civilian occupation. Also, a letter of partial completion along with documentation showing work experience and related instruction completed, should aid a soldier in the Army's career progression ladder and transition from the AAP to a civilian sponsored apprenticeship program.

(3) The goals for the AAP in Army Regulation 621-5, 25 July 1986, Army Continuing Education System (ACES) are consistent with 10 US Code, Section 4302, and Department of Defense Directive, Number 1322.8, July 23, 1977. The goals are: to enable enlisted soldiers to record and document specific skills acquired on

active duty; to assist military supervisors in making management decisions and work assignments based on documented work experience; to assist enlisted soldiers in obtaining civilian employment; and to provide a recruiting incentive for MOS that have related apprenticeship skills.

(4) At the request of the Deputy Chief of Staff Personnel, Administration, and Logistics (DCSPAL), TRADOC Analysis Command - Ft. Benjamin Harrison (TRAC-FBHN) is conducting an evaluation of the AAP. The purposes of the AAP evaluation study are to identify the benefits that the AAP provides to soldiers, the Army, and to evaluate the cost of offering the program.

2. Study Progress. Figure 2 sets out a three phased strategy for the overall study effort. TRAC-FBHN developed a three phase methodology that would thoroughly identify the benefits that the AAP provides to soldiers, the Army, and to the civilian workforce. The first phase of the study evaluated historic data on soldiers who participated in the AAP. The study agent briefed the results of the first phase of the study at the first study In Progress Review (IPR) on 24 March 1989. The results showed that soldiers who participate in the AAP:

- (1) Enlist for longer terms of service;
- (2) Have higher levels of job performance as measured by the Army's Skill Qualification Test (SQT);
- (3) Have lower attrition rates;
- (4) Reenlist at higher rates.

When combined, these factors contribute to the Army being the benefactor of increased active duty man-months for soldiers participating in the AAP. The final report will include these results along with the results of the third and final phase of the evaluation. This report focuses on the second phase or the AAP survey phase of the overall AAP Evaluation study effort.

### 3. Problem.

a. A recent review by ACES management has placed the AAP under increased scrutiny due to the lack of measures to evaluate program effectiveness. This review focused on the original purpose for the AAP, policy, goals, and the Total Army Goals.

b. Currently, more than 14 Major Commands administer the AAP through more than 200 Army Education Centers. Some believe that the cost of administering the program outweighs the benefits obtained from offering the program.

**ARMY APPRENTICESHIP PROGRAM (AAP)  
OVERVIEW OF EVALUATION STRATEGY**

PHASE I	PHASE II	PHASE III
<p>A. DETERMINE THROUGH USE OF HISTORIC DATA:</p> <p>1. SOLDIERS ATTRACTED TO THE AAP</p> <ul style="list-style-type: none"><li>- PARTICIPATION RATES</li><li>- DEMOGRAPHIC BACKGROUNDS</li></ul> <p>2. PERFORMANCE CHARACTERISTICS OF SOLDIERS IN THE AAP</p> <ul style="list-style-type: none"><li>- ATTRITION RATES</li><li>- SQT SCORES</li><li>- REENLISTMENT RATE</li></ul> <p>3. TANIGIBLE BENEFITS OF THE AAP</p> <ul style="list-style-type: none"><li>- ATTRACTING CRITICAL SKILLS</li><li>- ATTRITION</li><li>- REENLISTMENT RATES</li></ul> <p>4. DEVELOPMENT OF AN ACTION PLAN FOR COLLECTING ATTITUDINAL DATA ON SOLDIERS AND INDUSTRY</p>	<p>A. DEVELOP SURVEY FOR COLLECTION AND ANALYSIS OF DATA TO DETERMINE:</p> <p>1. THE BENEFITS OF THE AAP TO SOLDIERS</p> <ul style="list-style-type: none"><li>- DOCUMENT EXPERIENCE</li><li>- JOB SATISFACTION</li><li>- MOTIVATION</li><li>- JOB AVAILABILITY AFTER MILITARY SERVICE</li><li>- WAGES AFTER ETS</li><li>- STAY IN SIMILIAR ARMY TRAINED OCCUPATION</li></ul> <p>2. ALTERNATIVE AAP PROGRAMS</p> <p>3. MAKE RECOMMENDATIONS TO CONTINUE OR DISCONTINUE OR REORGANIZE THE AAP</p>	<p>A. REVIEW LITERATURE, SURVEYS OF SUBJECT MATTER EXPERTS TO DETERMINE:</p> <p>1. CURRENT DEFICIENCIES OF THE AAP</p>

**Figure 2. Army Apprenticeship Program Evaluation Strategy**

4. Objective. The objective of this interim study is to report the findings of the second phase or the survey phase of the AAP Evaluation study. The purpose of this survey effort is to determine the expectations of the AAP participants regarding: the value of participation in the AAP for the soldiers career; the value of job experience gained while on active duty; and their prospects in the civilian job market and how these factors will affect their decision to stay or leave the service. Soldiers also responded to some general questions to identify whether they have positive attitudes towards participation in the AAP and to determine their overall regard for their experience gained while on active duty.

5. Scope. The second phase of the AAP evaluation consisted of the development of survey instruments, the collection of survey data, and the analysis of survey data to determine the value of the AAP to soldiers. Personnel at Army Continuing Education System (ACES) centers administered the survey.

6. Limitations. The study agent planned and accomplished the survey phase of the overall AAP evaluation study in .5 professional staff year. The data for the second phase was limited to survey data.

## 7. Analytical Techniques.

a. In determining the differences in the motivations, attitudes, and expectations of survey recipients, the study agent used three techniques to analyze the survey data: descriptive and inferential statistics; a technique that converts categorical judgements into interval scales; and discriminant analysis. The following paragraphs will briefly discuss each of the techniques used.

### b. Descriptive and Inferential Statistics.

(1) Descriptive statistics include measures of central tendency (means), measures of dispersion or variance (standard deviations), and frequency distributions. The aim of the descriptive statistics used is to summarize the quantitative data into a form easily comprehended. The data was summarized and presented in graphic form.

(2) Inferential statistics are used to generalize sample survey results to results to the population being examined. They include descriptive statistics and probability assessments about a sample result. Hypothesis testing was used in this study to determine whether the difference in survey responses among groups were too great to occur simply as a matter of chance. If a survey difference was too great, then the hypothesis of equality was rejected.

c. Categorical Judgements. When analyzing survey opinion data, categorical data (e.g., very important, important, etc.) are often arbitrarily assigned a fixed interval scale (e.g., a value of 5 to 1, where "5" means very important and "1" means not at all important). Another approach to arbitrarily assigning a fixed interval scale is to use the actual survey data to determine the respondent's scale for the categorical data. The Categorical Judgements Method requires survey recipients to select a category that best represents their response to a question. One assumption is that the categories are a mutually exclusive set of successive intervals on variable scale. Descriptions are included with each category to help the survey recipient assess his or her response to a particular question, (i.e., very important, important, somewhat important, not very important, not at all important). This technique then transforms categorical judgements into an interval scale. Determining an interval scale based on survey responses using this method requires ten steps. Refer to appendix d for a detailed explanation of this technique.

d. Discriminant Analysis.

(1) Discriminant Analysis is a statistical technique, that is used to investigate whether a combination of independent variables, or predictor variables (i.e., survey responses), can be formed and serve as a basis for classifying cases into two or more groups. The prediction is made possible by the determination of one or more discriminant functions which use estimated weights which are assigned to the predictor variables. These weights are assigned in such a way that permits the predictor variables to maximally discriminant between the groups. The steps for analyzing data using this technique are as follows:

- (a) Determine whether one or more discriminant functions emerge which predicts group membership of a sample whose membership is known;
- (b) Assuming that a significant discriminant function emerges, determine the relative accuracy of the predication;
- (c) Determine the effectiveness of the predictor variables; and
- (d) Use the discriminant function to classify individual survey respondents into group membership.

(2) The purpose of using discriminant analysis for this study was to explore whether a combination of survey responses proved to be important indicators of survey group membership (i.e., what linear combination of survey question responses could best discriminate AAP soldiers from the general population of Army soldiers).

8. Essential Elements of Analysis (EEA). At the beginning of the study process, the study agent developed EEAs that supported the study objectives. The following are the second phase EEAs.

a. EEA (1) What is the perceived benefit of participating in the AAP?

b. EEA (2) What are soldiers' attitudes towards participation in the AAP?

c. EEA (3) What is the perceived value of participating in the AAP for soldiers' careers?

d. EEA (4) What is the perceived value of the job experience gained while on active duty?

e. EEA (5) What do soldiers perceive that their prospects are in the civilian job market?

f. EEA (6a) What are the factors that affect a soldier's decisions to enlist?

g. EEA (6b) What are the factors that affect a soldier's decisions to reenlist?

h. EEA (7) What are soldiers' overall regard for the experience gained while on active duty?

## CHAPTER 2 - AAP Survey Description

### 1. Introduction and Background.

a. At the conclusion of the first AAP evaluation IPR, the TRADOC DCSPAL, directed that the evaluation should include a survey of soldiers. The overall objective of the AAP survey was to determine the motivations, attitudes, and expectations of soldiers who are joining the AAP and compare the results to those of soldiers who have participated in AAP and are about to end their service in the Army. The first phase of the study revealed that soldiers who participated in the AAP were staying in the Army longer (i.e., retention benefit). These study results warranted a further investigation to determine whether the AAP had any effect on soldiers' initial enlistment and reenlistment decisions.

b. One of the deficiencies identified by the study was an inadequate amount of feedback on soldiers who leave the Army with either an AAP completion certificate or a letter of partial completion. Consequently, another purpose for the AAP exit survey was to facilitate the collection of information needed to follow-up on soldiers after they transition into a civilian

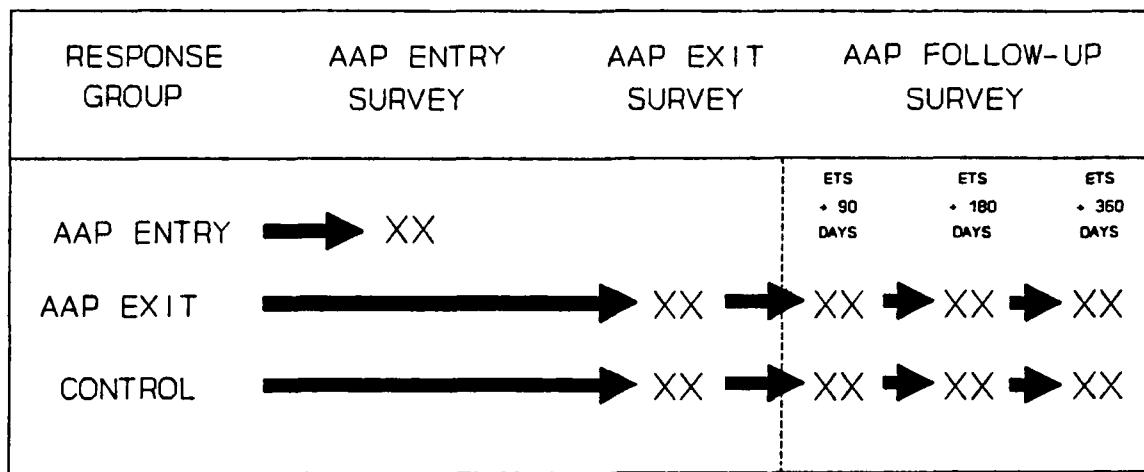
occupation. The objective of the follow-up survey is to determine whether: the soldier benefited by participating in the AAP and whether soldiers' realized their expectations about the AAP, job training, and the civilian job market. The key to examining whether soldiers have benefited from participation in the AAP is to determine: the types of job they secure; the length of time it takes; and how much they are compensated. The follow-up survey results will be reported when the results become available.

## 2. Survey Design.

a. Figure 3 shows the AAP Phase II survey design. This design necessitated the collection of data from three distinct groups of soldiers: soldiers joining the AAP, designated as - (AAP Entry); soldiers in the AAP and Ending their Term of Service (ETS) - (AAP Exit); and a control group consisting of soldiers who have never participated in AAP and are ETS - (Not AAP).

b. The target population for the AAP Entry Survey was active duty enlisted soldiers who are presently serving in an eligible MOS and who were enrolling in the AAP. Participants of the AAP Exit Survey were soldiers who have participated in the AAP and are planning, within the next few months, to separate from the Army. All soldiers preparing to ETS, whether they have participated in the AAP or not, participate in an outprocessing counseling session with an Education Center Counselor. Education center counselors administered the AAP Exit surveys during this session. To measure the retention value of the AAP and the real value of the AAP to soldiers, Education Center Counselors administered the Exit Survey to a third or a control group of soldiers. This control group, needed as a base case for comparison purposes, consisted of soldiers from all Army MOS.

c. Design features allow for comparisons in responses between the three survey populations. The survey design afforded us the opportunity to measure whether there are differences in the motivations and expectations of soldiers from the separate survey groups (i.e., How do AAP soldiers responses compare to other from the general population of Army soldiers). Furthermore, to determine whether soldiers have benefited from participation in the AAP, the AAP Exit and the control groups will participate in the AAP follow-up survey. This follow-up survey will determine the time needed and type of job secured by soldiers once they leave the Army.



**Figure 3. Army Apprenticeship Program Survey Design**

### 3. Survey Administration.

a. A clustered sample survey was the most appropriate for this study. This decision was made principally because the target populations for both the AAP Entry Survey and the AAP Exit Survey are very small, and it would be more of a administrative burden to randomly sample these populations (i.e. identify sampling plan and sample soldiers for a longer time frame to achieve the needed sample size). Eight ACES (four FORSCOM and four TRADOC) sites administered the survey between 7 July and 7 December 1989. Education Center counselors administered the written surveys to all soldiers during either a soldier's normal outprocessing interview or a counselling session prior to a soldier electing to participate in the AAP.

b. TRADOC ACES collected the surveys until 7 December 1989. They collected a total of 666 surveys, consisting of 266 AAP Entry, 105 AAP Exit, and 295 AAP Exit surveys from the Not AAP group. After five weeks of data collection, TRADOC ACES increased the number of sites in order to bolster the total size of the AAP Exit group. The AAP exit sample size is critical because soldiers surveyed as a part of the AAP Exit Survey will participate in a follow-up survey conducted 90, 180, and 360 days after they leave the Army.

## CHAPTER 3 - SURVEY RESULTS

### 1. Demographic Characteristics.

a. Since this was a clustered sample survey, it was important to assure that systemic biases were not introduced with the administration of the AAP survey. There were two methods employed to gain confidence in the survey data collected. The first method was to explore key demographic variables to determine if survey data demographics correspond to historic data demographics. Historic data refers to the data collected in phase I on the AAP soldier and non-prior service accessions for the period between 1979 through 1988. The second method was to determine which population characteristics, if any, may have affected survey responses. This was accomplished by using an SPSS crosstabs procedure to evaluate responses by soldier characteristics to determine if statistical differences were associated with soldier characteristics.

b. The following demographic variables were explored: age at entry into the Army; gender; race; and education level at enlistment. While there are a number of weaknesses associated with comparing historic data collected on an extended period to current survey data, the differences in demographic characteristics were not great enough to signal problems with the representativeness of the survey data. However, when comparing soldier characteristics, one element of concern is a soldier's current enlistment status. For the purpose of this study, enlistment status is a function of whether a soldier has reenlisted and will be designated as either first term or reenlisted.

c. Table 1 shows the percentage breakdown of the enlistment status of survey recipients. As shown in the table, a greater proportion of AAP Entry soldiers have reenlisted as compared to either the AAP Exit or Not AAP groups. For instance, 42 percent of the soldiers who have joined the AAP have already reenlisted compared to 25 percent of the Not AAP group. This is of particular significance because the Not AAP soldiers have served their enlistment in the Army and are about to end their term of service.

Table 1. Enlisted Status of Survey Recipients

Enlisted Status	AAP Entry	AAP Exit	Not AAP
First Term	58%	61%	75%
Reenlisted	42%	39%	25%

d. Table 2 shows the average age of soldiers who enter the AAP. First term soldiers averaged 22.4 years, and this is compared to 30.5 years for those soldiers who have reenlisted. Furthermore, the reenlisted soldiers obviously have considerably more Army experience. First term soldiers who entered the AAP averaged 1.9 years in the Army in comparison to reenlisted soldiers who entered the AAP averaged 12.5 years.

Table 2. Comparison of Age and Years in the Army for Those Entering the AAP

Enlisted Status	Age	Years in the Army
First Term	22.4	1.9
Reenlisted	30.5	12.5

e. One major concern lies in the fact that a higher percentage of soldiers have already reenlisted prior to joining the AAP. This suggests that:

- (1) Soldiers are not obtaining information and joining the AAP soon enough in their first term of enlistment and/or;
- (2) Once soldiers have reenlisted they are attempting to gain retroactive credit for Work In Process (WIP) hours already completed.

The higher reenlistment rates prior to entering the AAP adversely affect: AAP completion rates; the administrative burden on the Program Sponsor Service Schools; and the retention value of the AAP.

f. Using an SPSS crosstabs procedure to explore responses by soldier characteristics, it was determined that soldiers' enlistment status and survey group membership profoundly affect the responses of soldiers. The analysis in this study was designed to determine if response differences were attributable to survey group membership or enlistment status type. If the between survey group membership responses were statistically different, then we isolated on differences attributable to enlistment status. The objective was to determine which soldier attribute is the basis for the response differences.

## 2. WHY DO SOLDIERS ENLIST?

### a. Factors Affecting Enlistment

(1) To gain an understanding of the motivations and expectations of AAP soldiers and to answer the phase II Essential Element of Analysis (EEA), we needed to identify the reasons why soldiers enlist in the Army. Soldiers rated the importance of each of 13 possible reasons for their decision to enlist. The percentage results of these questions are displayed in table 3.

Table 3. Reasons For Joining the Army

REASONS	VERY IMPORTANT	IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT
1. To Serve My Country	31%	35%	23%	7%	4%
2. Chance To Better Myself	50	34	10	3	3
3. Family Tradition To Serve	9	13	16	22	40
4. Needed Time To Mature	18	20	24	16	23
5. To Prove That I Can Make It	19	20	20	20	22
6. I Was Unemployed	10	8	13	20	49
7. To Be On My Own	13	16	18	17	36
8. Earn More Money	14	19	22	17	28
9. Travel	18	26	24	15	17
10. Get Away From A Problem	8	7	8	17	60
11. To Get Job/Skill Training	39	21	15	9	16
12. To Get An Enlistment Bonus	8	9	15	20	48
13. To Get Money For College	44	20	10	9	17

(2) By combining the percentages for "Very Important," "Important," and "Somewhat Important," we can see that the most important reason for enlistment was "to better myself" followed by "to serve my country," "money for college," "for job training," "to travel," and "needed time to mature." These results are similar to results from new recruits. The US Army Recruiting Command annually surveys new recruits to determine if shifts have occurred in the reasons why youth join the Army. The results from the New Recruit Survey suggest that enlistees are joining for "college money," followed by "job/skill training," "patriotism," "self-improvement" and to "earn money." The top four reasons for enlisting were the same for both the New recruit and the AAP exit/entry surveys. Only the order of importance differed.

(3) The categorical judgements (e.g., very Important, Important, etc.) were converted to interval scales as explained in appendix D. Of the 13 possible reasons for joining the Army, six were identified as positive in importance affecting decisions to enlist. These reasons have been ordered on the basis of importance to AAP soldiers and are shown in figure 4. When examining the responses among survey groups, two reasons were found to be ranked significantly different. AAP soldiers replied that self-improvement and the desire for job/skill training were significantly more important factors in their decision to join the Army. Furthermore, among the reasons for enlisting, job/skill training proved to be the greatest discriminator between soldiers who have joined the AAP and those who are not in the program.

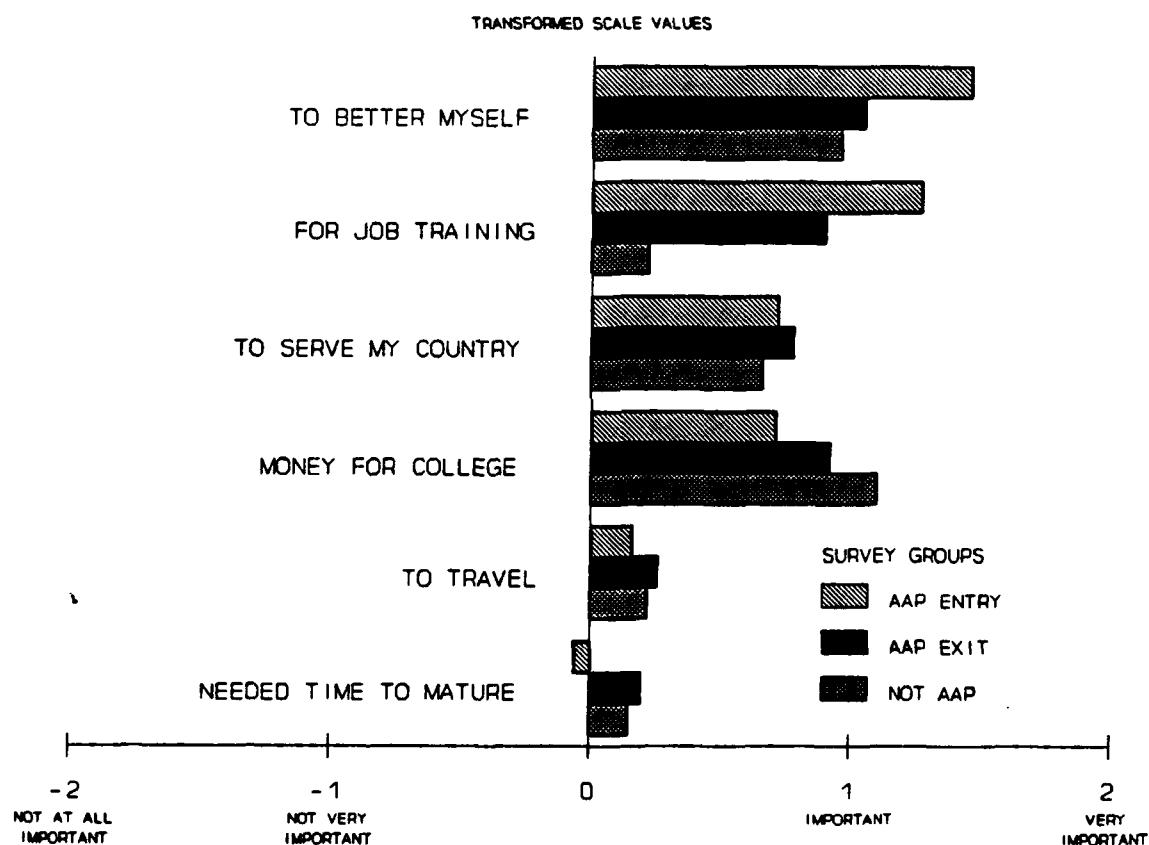


Figure 4. Important Reasons for Joining the Army

(4) Self-improvement and job/skill training are very much related and suggest that AAP soldiers are focused on self-improvement and/or career development.

### b. Desire for Job Training

(1) Next, we wanted to examine further the supposition that soldiers enlist because of their interest in job/skill training. Soldiers were asked whether they had specific job/skill training interest before they enlisted in the Army. Generally, more than half (57 percent) of the soldiers responded that they had specific training interest prior to enlisting. The response to this question varied significantly among the survey groups. Figure 5 displays that a significantly greater percentage of AAP soldiers (66 percent compared to 45 percent for the not AAP soldiers) wanted a specific job/skill training when they enlisted. This represents a 32 percent increase in the number of AAP wanting job/skill training when compared to general population of Army soldiers.

(2) Recent work by the Army Research Institute (ARI) on the Recruit Experience Tracking survey indicates that approximately 18 percent of soldiers enlisting in the Army would not have enlisted except for the job/skill training offered by the Army. Sixty-two percent of all soldiers responded that the job/skill training was important to their decision to enlist in the Army.

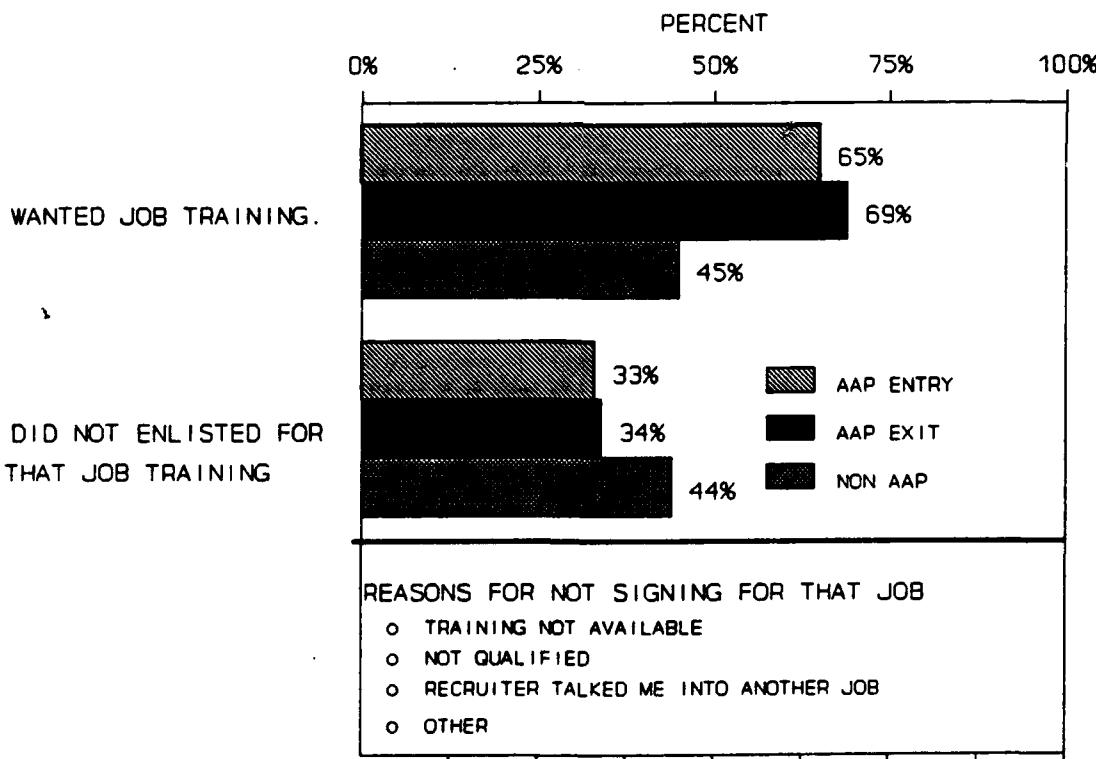


Figure 5. Interest in Job/Skill Training

(3) Also, figure 5 shows that AAP soldiers were more committed to getting the training they wanted. Sixty-eight percent of the soldiers participating enlisted for the training they desired compared to only 56 percent from the Not AAP group. The reasons for not enlisting in that training were, in order of frequency: "the training was not available," followed by "a recruiter talked me into another MOS," "I was not qualified" and "other."

#### c. Enlistment Options

(1) The Armed Forces use enlistment options to expand the recruiting market by offering incentives to American youth to attract those who might not otherwise be interested in serving their country. The Army College Fund (ACF) and the enlistment bonus option are two of the most effective Army recruiting options. These options have been particularly effective at both attracting youth into the Army, and as a management tool to channel youth into military occupations where the greatest demand exists for soldiers.

(2) Youth enlisting in the Army have the choice of selecting the type of training and occupation they desire. The Army strives to manage this by offering enlistment incentives for targeted MOS. Based on soldier responses, table 4 reveals that soldiers who have joined the AAP have received fewer enlistment bonuses than those soldiers who are not a part of the AAP. Furthermore, a smaller percentage of AAP soldiers are eligible for the Army College Fund (ACF) program. Generally, the data suggests that AAP soldiers are willing to forego enlistment incentives for training in a particular occupation.

TABLE 4. Comparison of Enlistment Options Survey Recipients

ARMY OPTIONS	AAP ENTRY	AAP EXIT	Not AAP	TOTAL
Enlistment Bonus	10.9%	15.7%	28.0%	19.3%
Army College Fund	46.7%	47.1%	56.1%	50.9%
Enlistment Term				
2 year	3.3%	14.6%	17.3%	11.5%
3 year	30.7%	40.8%	39.4%	36.3%
4 year	66.0%	44.7%	43.3%	52.2%

(3) Another important enlistment option that the Army offers is a variable initial enlistment term of service. The two year enlistment term coupled with the ACF was added to attract those high school graduates who are willing to forego their education for a short 24 months in return for Army experience.

and, more importantly, money to fund their college education. Table 2 shows that AAP soldiers enlist for longer terms of service and that the majority of AAP entry soldiers enlisted for 4 years of service. This may be explained by any one or all of the following reasons: AAP MOS have longer training periods, (thus, they require a longer Army payback or enlistment term); enlisting for a two year term does not give the soldier enough time to complete the AAP; and the length of time needed to become aware of the AAP precludes most two year soldiers from joining the program.

### 3. FUTURE PLANS

a. After completion of their Army commitment, soldiers generally continue their education or enter the workforce. However most of them will pursue a combination of these two options. Some soldiers will place a greater significance on their education and will continue their formal education on a full-time basis while working part-time; whereas, others will emphasize career development by seeking full-time employment and continuing their education on a part-time basis.

b. As identified in the study plan, one of the study EEAs was to determine soldier perceptions of "their prospects in the civilian job market." To accomplish this, we wanted to identify what soldiers were planning to do following their Army service. The soldiers' responses to this question vary a great deal depending on: the length of time soldiers have been in the Army; whether they have reenlisted; and whether or not they are/have participated in the AAP.

#### c. Education.

##### (1) Education Status.

(a) Reenlisted Soldiers. Soldiers who have reenlisted, regardless of survey groups, are less likely to plan to continue their education on a full-time basis and are more likely to continue on a part-time basis after the Army. For instance, about 47 percent of first-term soldiers are planning to continue their education on a full-time basis compared to only 23 percent for those who have reenlisted. Furthermore, a greater percentage of reenlisted soldiers plan to further their education on a part-time basis (63 percent reenlisted versus 45 percent for first-term soldiers). The education plans for soldiers who have reenlisted, and are from either of the survey groups - AAP Entry, AAP Exit and Not AAP - were not statistically different. The old adage which states that the longer a person is away from school, the less likely he is to go back to school, appears to be true for survey respondents. Generally, soldiers who have reenlisted are less likely to plan to continue education on a full-time basis.

(b) First Term Soldiers. The next step was to explore the responses of first-term soldiers. First-term AAP soldiers responded similarly to soldiers who have reenlisted. As figure 6 shows, first-term AAP soldiers (entry/exit) are less likely to plan on continuing their education on a full-time basis; however, this is not to say that AAP soldiers or soldiers who have reenlisted do not have education plans following the Army. Their primary emphasis appears to encompass full-time work and continuing their education on a part-time basis.

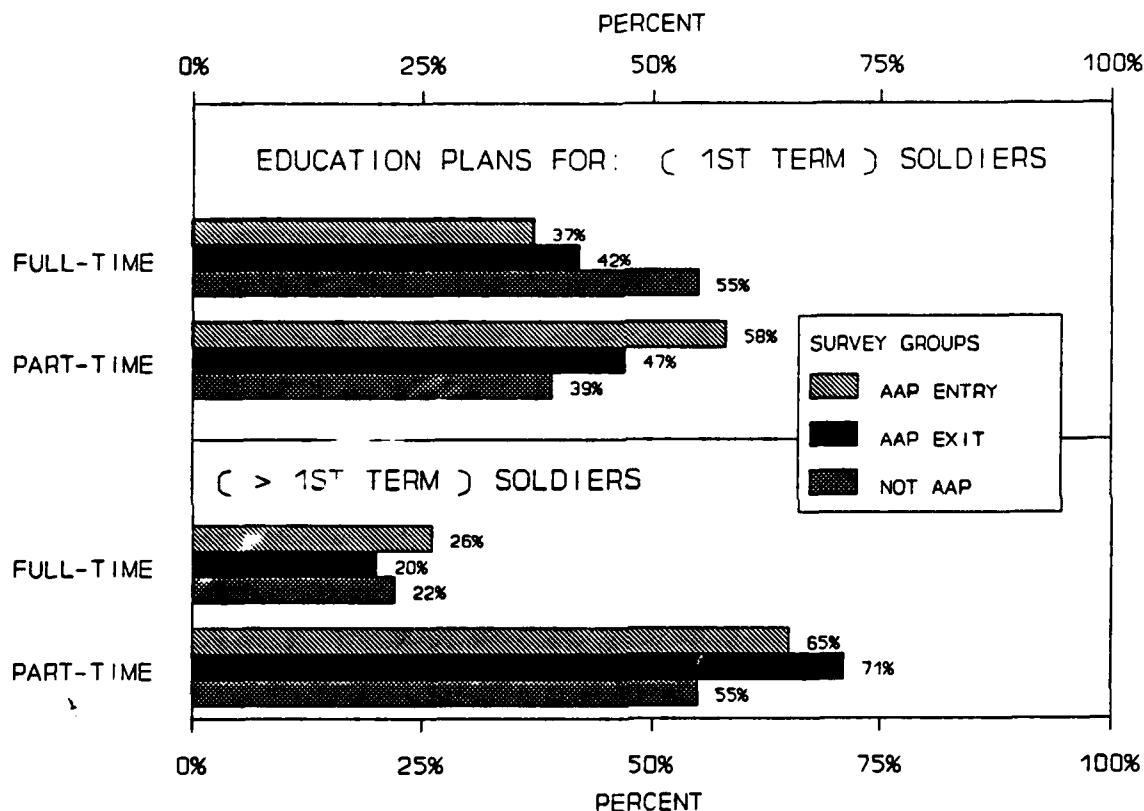


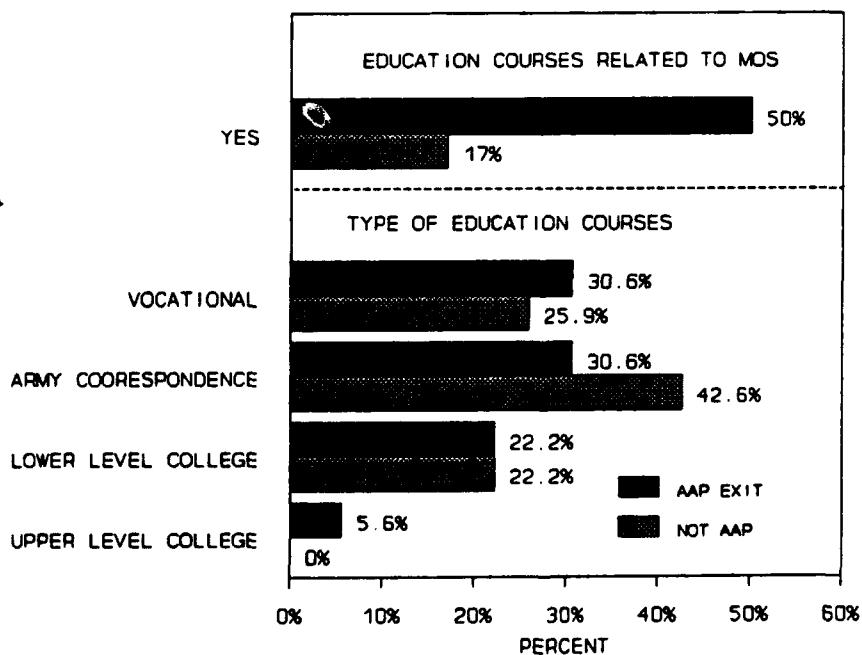
Figure 6. Education Plans After the Army

(3) Types of Education institutions. Table 5 identifies the types of formal training soldiers plan on attending following the Army. Remarkably, the responses didn't significantly differ when isolating on: length of service; reenlistment status; and survey group membership. Forty-two percent of the soldiers responded that they planned on attending a "four year college or university," followed by "vocational training," "two year college," and "high school completion."

**Table 5. Education Institutions Soldiers Plan on Attending**

SCHOOL TYPE	AAP ENTRY	AAP EXIT	Not AAP	TOTAL
High School	2.9%	1.1%	0.0%	1.3%
Vocational	34.6%	33.7%	30.9%	32.8%
2 Year College	22.6%	20.2%	24.5%	23.1%
4 Year University	39.9%	44.9%	44.6%	42.9%

(4) Army Education. Figure 7 identifies the percentage of soldiers who have completed education courses and the type of courses which they have completed that relate to their MOS while in the Army. A significantly greater percentage of AAP Exit soldiers have taken education courses related to their MOS as compared to soldiers in the Not AAP population. The responses of the AAP Entry group are not shown because presumably, these soldiers have not been in the Army long enough to take courses related to their careers. The type of education courses which the soldiers had completed were not found to be significantly different.



**Figure 7. Education Courses Completed While in the Army**

## b. Employment

### (1) Work Status

(a) Regardless of the survey group, most soldiers who have reenlisted plan to work on a full-time basis after the Army. For instance, more than 90 percent of the reenlisted soldiers as compared to 63 percent of first-term soldiers, plan to seek full-time employment. As figure 8 shows, little or no difference exists in work plans for those who have reenlisted.

(b) Figure 8 shows the responses of first-term soldiers segregated by survey groups. A greater percentage of first-term AAP soldiers plan to work on a full-time basis versus soldiers who have not participated in the AAP. Additionally, there is a striking difference in the percentage of soldiers planning to seek full-time employment within the AAP groups. Seventy-six percent of AAP Entry soldiers compared to 61 percent of AAP Exit soldiers will seek full-time employment after the Army. This magnitude of difference suggests that AAP Entry soldiers (compared to AAP Exit soldiers) have higher expectations that the AAP, and their Army experience, will prepare them for civilian employment. AAP Exit soldiers are much closer to the reality of seeking employment; therefore, this factor may also have affected their response on this question.

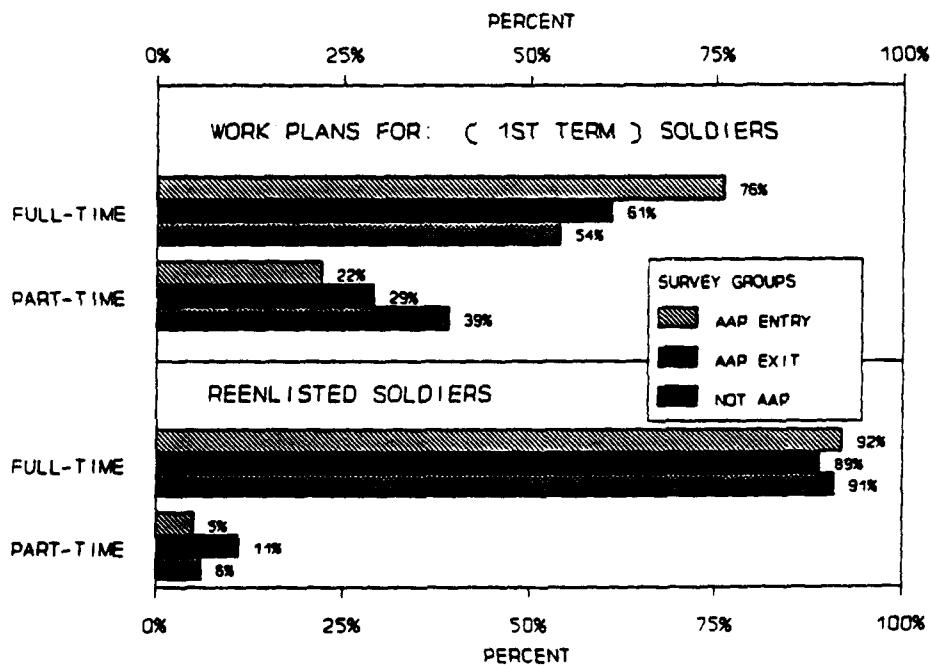


Figure 8. Work Plans After the Army

(2) Jobs That Require Similar Army Learned Skills.

(a) The Army invests a great deal of time and money to train soldiers occupational skills. The Army is not the only benefactor of Army training and the AAP. Soldiers learn occupational skills that will eventually lead to civilian employment when they separate from the Army. Civilian industry acquires a residual value from Army training because, in most cases, they hire an individual that already has basic job skills needed to do well in a vocation. Civilian industry only has to train the skills specifically related to their industry, thus, lessening their training burden.

(b) Soldiers were asked whether they planned to seek civilian jobs that were similar to the job skills learned while in the Army. Nearly three quarters (74 percent) of the AAP Entry and more than one half (53 percent) of the AAP Exit soldiers replied that they planned to seek civilian jobs which required similar skills. A significantly fewer number of soldiers - only 34 percent of soldiers in the Not AAP population - will seek similar civilian occupations. While the Army is not in the business of training soldiers for civilian industry, it is evident that a greater proportion of the soldiers who participated in the AAP are planning to take those skills mastered in the Army to a civilian occupation after their enlistment; thus lessening the training burden for civilian industry.

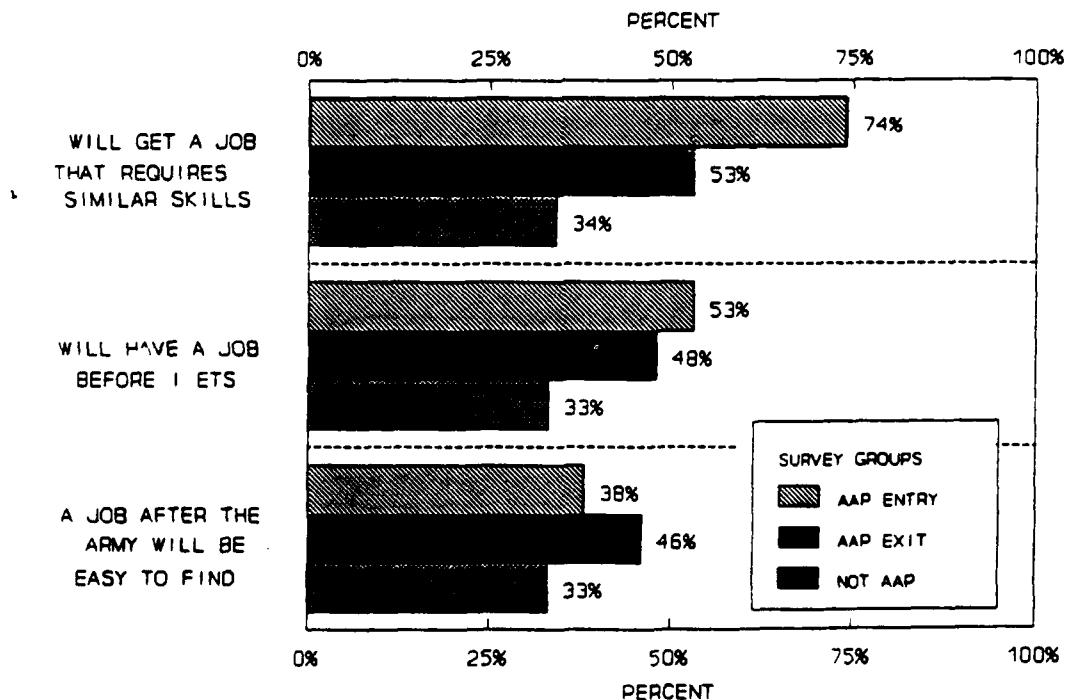


Figure 9. Employment Intentions After the Army

(3) Plan To Have A Job Before I ETS. To measure their sense of forward thinking and maturity, survey respondents were asked whether they planned on having a job prior to their separation from the Army. The results of this question are displayed in figure 9. More than half (52 percent) of the AAP soldiers responded that they would have a job prior to Army separation. In comparison, significantly less of the Not AAP soldiers (33 percent) are planning to have a job before they end their term of service.

(4) Difficulty Finding a Job. Next, to gain an understanding of survey respondents' confidence as they approach the civilian job market, they were asked to respond to how difficult they thought it would be to get a job. The results of this question are in figure 9. AAP soldiers are more confident about their capability of securing a job than those soldiers from the Not AAP group. Whereas AAP Entry soldiers have "scored higher" for the two previous expectation questions, now, the AAP Exit soldiers have higher expectations of the ease of securing a civilian job. Possible explanations are that AAP Exit soldiers are more confident because of their particular Army training, AAP participation, or the experience gain while in an Army occupation, or a combination of all three elements. AAP soldiers, particularly AAP Exit soldiers, are more confident about their ability to secure a civilian occupation when they leave the Army.

#### 4. ARMY APPRENTICESHIP PROGRAM.

##### a. AAP Information Sources.

(1) Figure 10 identifies the sources of information utilized by the survey respondents to learn about the AAP. According to the soldiers surveyed, the largest single (41 percent) source of information on the AAP was from an Army Education Center, followed by friends, supervisors, other, recruiters, and lastly, the news media.

(2) The origin of information about the AAP can be characterized as support for the program. Soldiers would not be receiving information from the listed sources if, in fact, those sources did not support the program. When comparing the three response groups, the AAP entry soldiers would have acquired the most recent information on the AAP versus the AAP exit or Not AAP groups. Soldiers entering the AAP are receiving significantly more information from either friends and/or the chain of command. This suggests that a grassroots support exists for the AAP. This conclusion is also consistent with personal interviews that were conducted with AAP soldiers and their supervisors.

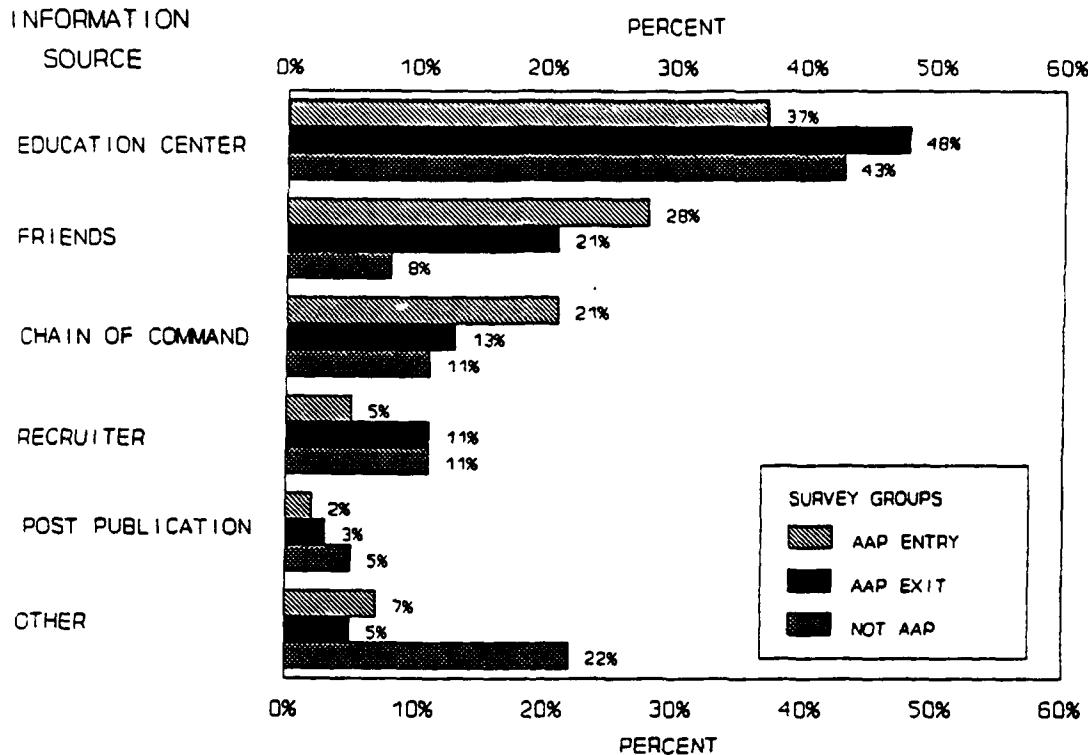


Figure 10. Sources of Information on the AAP

(3) Furthermore, figure 10 reveals that, AAP Entry soldiers are receiving significantly less information and suggests a lack of knowledge or a waning of support for the AAP. While AAP Entry soldiers are obtaining a great deal of AAP information from the Army Education Centers, it is significantly less than what was acquired by the other two groups surveyed (AAP Exit/Not AAP). Also, AAP Entry soldiers are receiving less information from Army recruiters. Education center counselors and recruiters are not selling the program because they either "lack knowledge of" or they exhibit "waning of support for" the AAP.

(4) The declining amount of information being received from Army recruiters appears to be more of a lack of knowledge within the US Army Recruiting Command (USAREC) about the AAP. A great deal of USAREC effort is focused on recruiting the high-quality youth in search of education assistance for college, and not on soldiers interested in vocational training. Since AAP Entry soldiers are obtaining significantly less information from Education center counselors than what was acquired by the other two groups surveyed (AAP Exit/Not AAP), this suggest that there is a "waning of support" for the AAP from Education center counselors. This conclusion, which is supported by survey data, is underscored by personal contact with counselors at Army education centers. One education center counselor stated that at

was "impossible to sell the program because he had no idea what happens to soldiers after they separate from the Army." Education center counselors have not seen any tangible benefits gained by soldiers from participating in the AAP. Another possible explanation suggested by a counselor is that "education center leadership is academic versus vocational-orientated there is a bias in Education Centers towards academic versus vocational training."

b. AAP Effect on Enlistment and Reenlistment. The first phase of the AAP Evaluation study showed that the Army appeared to realize a retention benefit by offering the AAP. The next few questions were developed to identify whether the AAP had any effect on soldiers' initial decision to enlist or whether AAP completion was a factor in their decision to reenlist.

(1) Knowledge of the AAP Prior to Enlistment. First, we wanted to identify how many soldiers knew about the AAP prior to their enlisting. Since the AAP option is not being explained to high school students by Army recruiters or to other American youth through media advertising, it was not expected that many of these soldiers would have heard of the AAP before enlisting. However, as figure 11 shows, on the average, 14 percent of the soldiers, surveyed knew about the AAP when they enlisted. Responses between survey groups for this question did not prove to be statistically different.

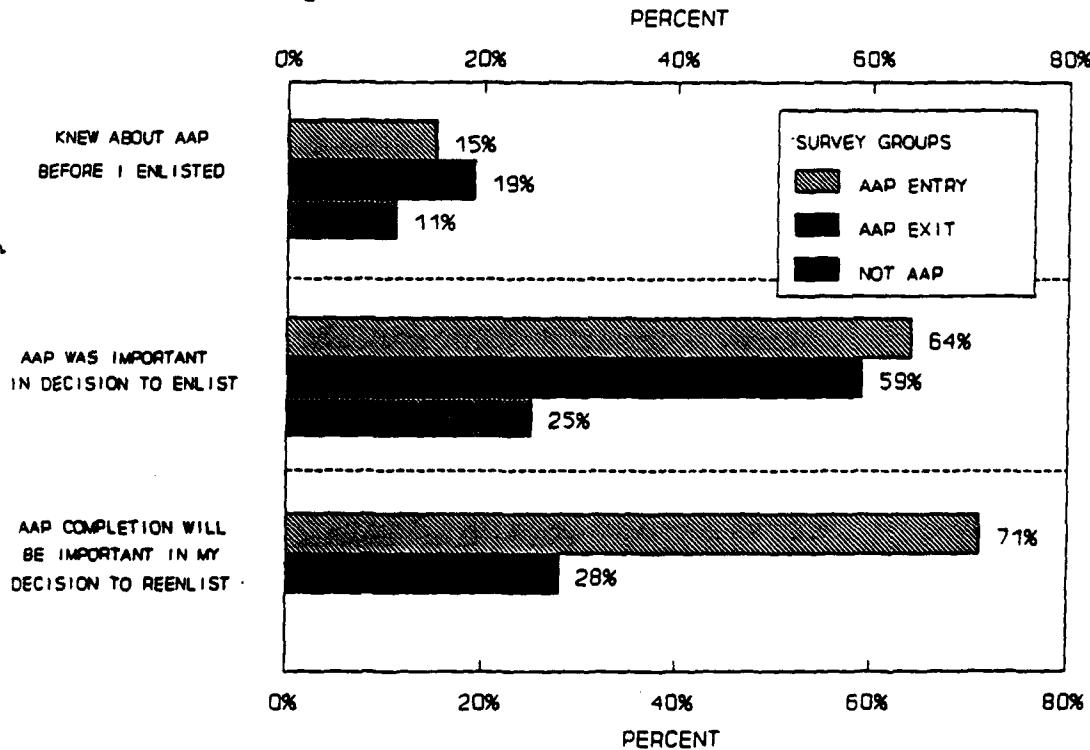


Figure 11. AAP Effect on Enlistment and Reenlistment

(2) AAP Participation. After determining the percentage of soldiers who knew about the AAP prior to enlisting, the next most logical question was to determine the importance of the AAP to their decision for enlistment. As shown in figure 11, of the ones who knew about the AAP prior to enlisting 65 percent of the AAP Entry and 59 percent of the AAP Exit soldiers replied that the AAP was an important factor affecting their decision to enlist. Clearly, these differences suggest that the potential of participating in the AAP is a positive influence on soldiers' decisions to enlist in the Army. However, few people know about the AAP prior to enlisting.

(3) AAP Completion. The length of time needed to complete the AAP generally requires more than one enlistment term. The next question was developed to identify whether completion of the AAP would be important in a decision to reenlist. As shown in Figure 11, 71 percent of the AAP Entry soldiers replied that AAP completion would be an important factor affecting their decision to reenlist. Significantly fewer AAP Exit soldiers stated that the AAP was important to their reenlistment decision. This response can be explained because presumably all of the AAP Exit soldiers have already decided to separate from the Army.

### c. Why Do Soldiers Participate in the AAP?

(1) To understand the motivations and expectations of soldiers participating in the AAP, we wanted to understand why soldiers choose to participate in the AAP. Soldiers rated how important each of the list of five possible reasons were to their decision to join the AAP, shown in table 6. When combining the percentages for "Very Important," and "Important," two reasons stood out as more important in soldiers' decisions to join the AAP. Eighty-seven percent of AAP soldiers responded that to "document job skills" and to "help me to get a civilian job" were the most important reasons why they joined the AAP.

Table 6. Reasons for Joining the Army Apprenticeship Program

REASONS	VERY IMPORTANT	IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT
1. Document Job Skills.....	65%	22%	8%	2%	2%
2. Will Help My Military Career.....	38	28	17	10	7
3. More Intensive Job Training..	35	28	22	9	7
4. To Get More Interesting/ Challenging Work.....	34	30	22	10	5
5. Help Me to Get a Civilian Job	64	23	10	2	1

(3) The categorical judgements (e.g., very Important, Important, etc.) were converted to interval scales as explained in appendix D. While six possible reasons for joining the AAP were given, all five were identified as positive in importance affecting their decisions to join the AAP. These reasons have been ordered on the basis of importance to AAP soldiers and are shown in figure 12. When examining the responses among survey groups, the two reasons "document job skills" and to "help me to get a civilian job" were found to be more important to both the AAP Exit and the AAP Entry groups.

(4) AAP Entry soldiers rated each of the five reasons as being more important to them than the AAP Exit group. This is particularly the case for the "in the Army" reasons i.e., to help my military career, etc. Reenlisted Soldiers from either the AAP Entry and the AAP Exit groups responses did not vary significantly. This means that all of the response differences to these questions were among first term soldiers. Results suggest that the AAP Entry soldiers have higher expectations that the AAP will assist their military career, but high expectations may not have been totally realized for the first term AAP Exit soldiers. Clearly, the respondents indicate that their reasons for joining the AAP were to document job skills, and soldiers believe this will help them to secure a civilian job after they leave the Army.

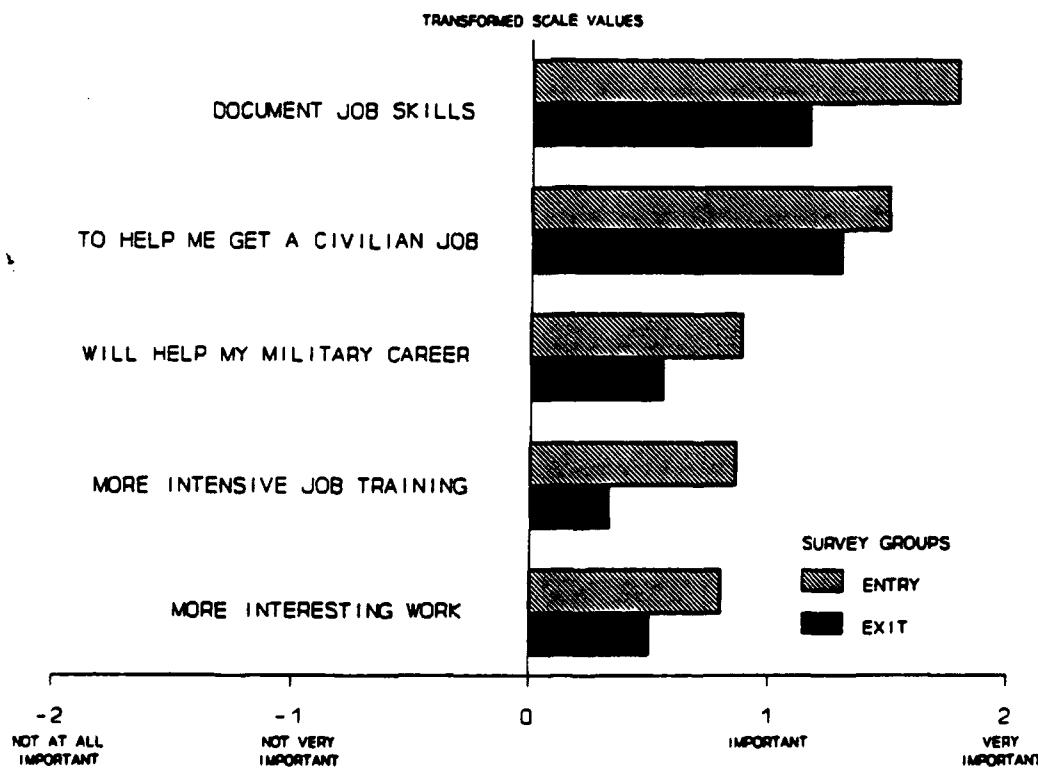


Figure 12. Important Reasons for Joining the AAP

d. Why Do Soldiers Drop out of the AAP?

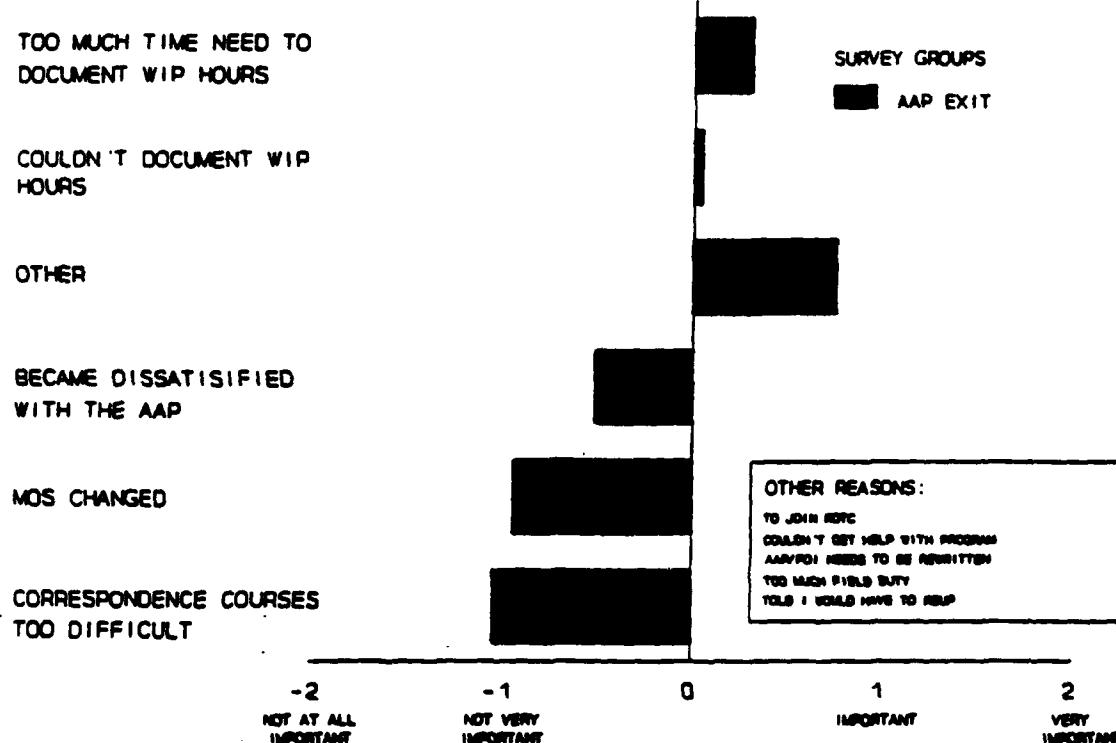
(1) Six possible reasons for dropping out of the AAP were presented to the AAP Exit soldiers who have dropped out of the program. These soldiers rated how important each were in their decision to drop out of the AAP. The results are based on a very small subsample of the AAP Exit group and are displayed in table 7.

(2) The respondents' categorical judgements were converted into interval scales to determine the overall rank of these responses. Figure 13 shows that only three of the original six reasons positively affected soldiers decisions to drop out of the AAP. Positive reasons for dropping out of the AAP were that it "took too much time to document WIP hours," "couldn't document WIP hours," and "other". For the "other" reasons soldiers had the opportunity to write in their response. These responses varied from positive reasons, i.e., "soldiers joined ROTC," "were promoted and became a supervisor," to negative reasons, i.e., "couldn't get help with the program," "thought that the AAP program of instruction needed to be rewritten," "thought there was too much field duty," and "thought they would have to reenlist."

Table 7. Reasons for Dropping Out of the AAP

REASONS	VERY IMPORTANT	IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT
1. My Primary MOS Changed	4%	15%	15%	13%	52%
2. Couldn't Document WIP Hours in Current Job	31	18	22	8	20
3. Correspondence Courses Too Difficult	7	2	22	20	50
4. Too Much Time Needed to Document WIP Hours	22	11	33	11	24
5. Dissatisfied with the AAP	13	11	22	18	36
6. Other	45	17	21	3	14

(3) There was no real consensus on why soldiers are dropping out of the AAP. Conversely, it may be beneficial to know that soldiers are not dropping out of the AAP because: "they were dissatisfied with the AAP;" "their MOS changed;" and "that correspondence courses were too difficult."



**Figure 13. Important Reasons for Dropping out of the AAP**

## 5. PERCEIVED VALUE OF ARMY EXPERIENCE.

a. Value of Participation of the AAP. The next three questions were developed to identify how valuable the AAP was to the soldiers and their careers. In particular, the study sponsor wanted to determine soldiers' expectations of: the overall satisfaction of soldiers participating in the program; the value of the AAP in developing job knowledge, skills, and abilities; and the value of the AAP at helping to secure civilian employment.

### (1) Satisfaction with the AAP.

(a) Table 8 shows only 6 percent of the AAP soldiers responded that they were not satisfied with the AAP. A further investigation of this 6 percent shows that, while less than 1 percent of the AAP Entry were dissatisfied, more than 17 percent of the AAP exit responded that they were dissatisfied with the AAP. Furthermore, the 1988 Sample Survey of Military Personnel conducted by the Total Personnel Integration Command, found that more than 14 percent of Army soldiers who were aware of the program were dissatisfied with the AAP. Both of these results suggest that some real problems exist with the administration or delivery of the AAP.

(b) Soldiers' categorical judgements for this question were converted into interval scales to determine their overall satisfaction with the AAP. Figure 14 shows that AAP Entry soldiers are more satisfied with the AAP than are AAP Exit soldiers.

Table 8. The Value of the Army Apprenticeship Program

RESPONSES VALUE INDICATORS	VERY VALUABLE	VALUABLE	SOMEWHAT VALUABLE	NOT VERY VALUABLE	NOT AT ALL VALUABLE
1. Satisfaction with the AAP... 25%	38%	31%	2%	4%	
2. AAP Helped to Develop Job Knowledge, Skills and Abilities..... 20%	25%	34%	7%	14%	
3. Value of AAP for Helping You to Obtain a Civilian Job .. 42%	32%	16%	6%	5%	

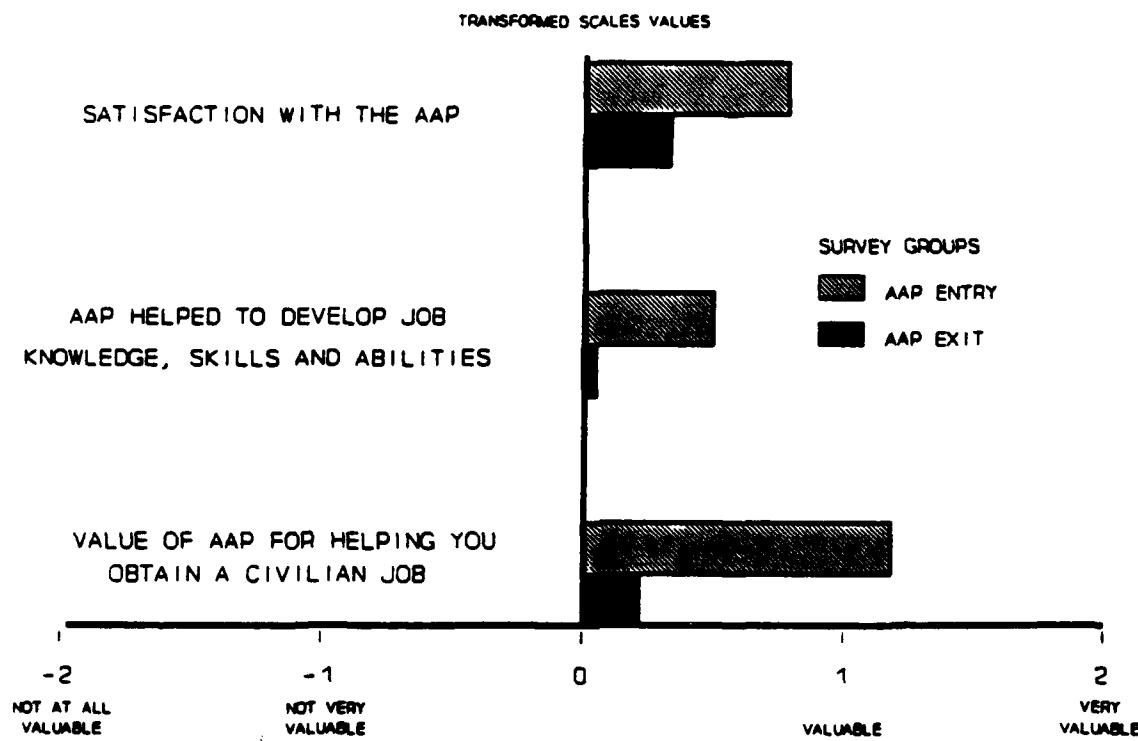
(2) AAP Development of Job Skills and Knowledge.

(a) Table 8 shows that 21 percent of the AAP soldiers responded that the AAP was not very, or not at all valuable in developing job skills, knowledge, and abilities. A further analysis of responses showed that 12 percent of the AAP Entry soldiers as compared to 35 percent of the AAP Exit soldiers, did not believe that the AAP was valuable in developing job skills since the AAP is more of a training and work experience documentation system. There is nothing inherent about the program that specifically suggests that AAP soldiers will develop a higher degree of job knowledge and skills. According to the responses, many of the AAP soldiers feel that the program does not, in itself, aid in the development of job skills, knowledge, and abilities.

(b) Figure 14 displays the interval scales of soldier response to this question. AAP Entry soldiers have positive expectations that the AAP will assist in the development of job skills, knowledge, and abilities, whereas AAP Exit soldiers are indifferent.

(3) Value of the AAP to Obtain a Civilian Job.

(a) The next question was developed to assess soldier expectations of the value of AAP participation to assist them in obtaining civilian employment. While 11 percent of the soldiers responded that they did not believe that the AAP was a valuable aid in securing a position, there is a considerable contrast in the opinions of AAP Entry versus AAP Exit soldiers.



**Figure 14. Satisfaction/Value of the AAP**

Two percent of the AAP Entry soldiers believe that the AAP was as not valuable as compared to 31 percent of the AAP Exit group. To further illustrate the dissimilarity in responses, 51 percent of the AAP Entry soldiers compared to 17 percent of the AAP Exit soldiers, replied that the AAP would be very valuable in helping them to obtain a civilian employment. This shows, as with the responses to other AAP expectations questions, that internal problems may exist with the AAP. It was suggested at the second IPR that the possible reasons for this disparity may be a result of dissatisfaction because of the low AAP completion rates.

(b) Figure 14 displays the interval scales of soldier response to the value of the AAP. As the figure shows, there exists a wide disparity in the opinions of the AAP Entry and AAP Exit soldiers. AAP Entry soldiers have high expectations that the AAP will assist them with their career search after the Army.

b. Value of the Army Enlistment. This section of the report was developed to determine how survey respondents valued

their Army experience. The last three questions examined in this study deal with a soldier's perceived value of: the overall experience gained by joining the Army; the Army training and; the job experience gained while serving in the Army. Specifically, we wanted to compare the value that AAP soldiers place on their experience with the value that non-AAP participants place on that experience.

(1) Overall Experience Gained in the Army.

(a) As table 9 shows, only eight percent of the soldiers surveyed responded that their experience was not valuable to them. Eighty percent of the AAP soldiers, compared to 68 percent of the Not AAP group, responded that their Army experience was valuable or very valuable.

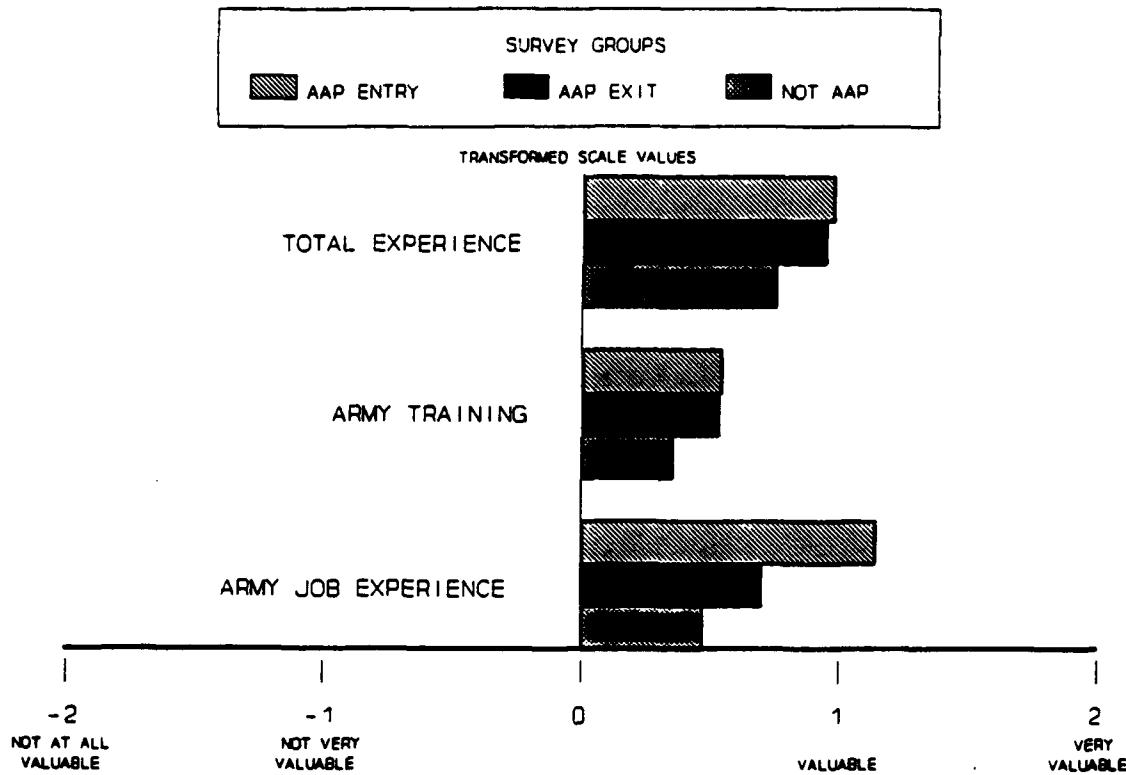
Table 9. The Value of the Army Experience

RESPONSES VALUE INDICATORS	VERY VALUABLE	SOMEWHAT VALUABLE	NOT VERY VALUABLE	NOT AT ALL VALUABLE
1. Total Army Experience ... 38%	36%	19%	5%	3%
2. Army Training..... 26%	33%	26%	11%	5%
3. Army Job Experience..... 39%	26%	20%	9%	6%

(b) Figure 15 shows the results of converting soldiers' categorical judgements into interval scales. Soldiers who have participated in the AAP rated their total Army experience as being more valuable than soldiers who have not participated in the program. Furthermore, the response varied as a result of survey group membership and not because of enlistment status. Reenlisted soldiers rated their experience as only slightly more valuable than first term soldiers.

(2) Value of Army Training.

(a) As table 9 shows, 16 percent of the soldiers surveyed responded that Army training was not valuable to them. Among survey groups there is a considerable difference in the soldiers' opinions of Army training. Generally, AAP soldiers rated the training that the Army provided as being of greater value to them, i.e., 8 percent of the AAP Entry, compared to 14 percent of the AAP Exit soldiers and 23 percent of the Not AAP soldiers replied that Army training was not valuable.



**Figure 15. Value of the Army Experience**

(b) Figure 15 displays the interval scales of soldier response to the value of the AAP. As the figure shows AAP soldiers rated their Army training as being of greater value to them.

**(3) Value of Job Experience Gained on Active Duty.**

(a) To evaluate the other aspect of a soldier's Army career, the soldiers were asked to rate an item regarding job experience acquired while serving in the Army. As table 9 shows, 65 percent of the soldiers responded positively that their Army job experience was valuable or very valuable to them. Among survey groups, there is a considerable difference in the soldiers' opinions of Army job experiences. Generally, AAP soldiers rated Army job experience as being of greater value to them. Eighty percent of the AAP Entry soldiers, compared to 65 percent of the AAP Exit soldiers and only 51 percent of the Not AAP soldiers, replied that Army job experience was valuable or very valuable to them.

(b) Figure 15 displays the interval scales of soldier response to the value of Army job experience. As the figure shows, AAP soldiers place greater value on the job experience gained while in the Army. Furthermore, among AAP soldiers, there exists a dissimilarity of opinions in the value of job experience gained while in the Army. Eighty percent of the AAP Entry (compared to 65 percent of the AAP Exit) replied that an Army job experience was valuable or very valuable to them. The source of the difference is not readily apparent. One possible explanation is that AAP Entry soldiers have evaluated this question on the expected value of Army job experience and that these higher expectations were not realized for the AAP Exit soldiers. Also, AAP Exit soldiers are closer to the reality of taking their Army job experience to the civilian job market, thus lessening their enthusiasm.

## 6. IMPORTANT DISCRIMINATORS BETWEEN SURVEY GROUPS.

a. The purpose of using discriminant analysis for this study was to explore whether a combination of survey responses proved to be important indicators of survey group membership (i.e., what linear combination of survey question responses could best discriminate AAP soldiers from the general population of Army soldiers). Although one of the assumptions for using discriminant analysis is the use of predictor variables that form a multivariate normal distribution, the procedure has been shown to perform fairly well in a variety of other situations, i.e., when predictors are dichotomous.

b. In discriminant analysis, a linear combination of the independent variables is formed and serves as the basis for assigning cases to groups. Thus by finding a weighted average of survey responses, one can obtain a score that distinguishes soldiers who participate in the AAP from those who did not. While, the discriminant functions' ability to classify soldiers is interesting, the underlying variables selected are most important because they help to explain how the two groups differ.

c. A stepwise method was used for determining the variables to be included/excluded from the discriminant function equation. Table 10 shows that out of a possible 40 different survey question responses, a combination of 17 survey questions was found to be a good predictor of survey group membership. While most of the questions that entered the discriminant function equation have previously been investigated, a group of questions entered the equation that we have yet to mention. These were questions related to soldiers' decisions to ETS. Soldiers were given the opportunity to rate the importance of 14 different factors on their decisions to ETS. The questions related to soldiers' decisions to ETS that entered the equation were: "Couldn't get skill training I wanted," followed by "Couldn't select a job I wanted," "No credit for doing a good job,"

"Unequal treatment," "Too many job related moves," "Military pay and allowances," and "Couldn't get job location I wanted." Interestingly, these questions are all of the "job related" reasons affecting soldiers decisions to leave the Army. Responses to these question proved to be good predictors of survey groups membership.

Table 10. Discriminant Analysis Results

DISCRIMINANT ANALYSIS RESULTS			DISCRIMINANT FUNCTION COEFFICIENT
STEP ENTERED	QUESTION		
1	Q6K	REASON FOR ENLISTING - TO GET JOB/SKILL TRAINING	.19
2	Q6B	REASON FOR ENLISTING - CHANCE TO BETTER MYSELF	.49
3	Q17	HAVE YOU TAKEN EDUCATION COURSES RELATED TO MOS?	.84
4	Q13	DO YOU PLAN TO ENROLL IN SCHOOLING AFTER THE ARMY?	-.59
5	Q22	DID YOU KNOW ABOUT THE AAP BEFORE YOU ENLISTED?	.63
6	Q19F	REASON FOR ETS - COULDN'T GET SKILL TRAINING I WANTED	.57
7	Q19G	REASON FOR ETS - COULDN'T SELECT A JOB I WANTED	-.51
8	Q19D	REASON FOR ETS - NO CREDIT FOR DOING A GOOD JOB	-.34
9	Q19M	REASON FOR ETS - UNEQUAL TREATMENT	.20
10	Q19L	REASON FOR ETS - TOO MANY JOB RELATED MOVES	-.22
11	Q3	DID YOU WANT SPECIFIC JOB TRAINING?	.39
12	Q19B	REASON FOR ETS - MILITARY PAY AND ALLOWANCES	.17
13	Q12	DESCRIBE YOUR EMPLOYMENT PLANS	.32
14	Q6I	REASON FOR ENLISTING - TRAVEL	-.15
15	Q19H	REASON FOR ETS - COULDN'T GET JOB LOCATION I WANTED	.15
16	Q8B	HOW VALUABLE WAS ARMY TRAINING?	.23
17	Q8C	HOW VALUABLE WAS ARMY JOB EXPERIENCE?	-.15
(constant)			-2.96

d. The percentage of cases classified correctly is an indicator of the effectiveness of the discriminant function. The discriminant function was able to correctly classified 74.5 percent of the soldiers into the AAP and the not AAP group.

## 7. CONCLUSIONS.

a. This second phase of the overall AAP Evaluation study had two objectives: (1) to determine the motivations, attitudes and expectations of soldiers who participate in the AAP and identify how they compared to other Army soldiers and; (2) to collect information needed to follow-up on soldiers after they transition into civilian occupations.

b. The following are study conclusions drawn from the analysis of survey data:

(1) The survey revealed that a high percentage of soldiers have already reenlisted prior to joining the AAP. This suggests that: soldiers are not obtaining information and joining the AAP soon enough in their first term of enlistment and/or; once soldiers have reenlisted, they are attempting to gain retroactive credit for Work In Process (WIP) hours already completed. The higher reenlistment rates prior to entering the AAP adversely affects; AAP completion rates; the administrative burden on the Program Sponsor Service Schools; and the retention value of the AAP.

(2) The most important reason why soldiers enlisted was "to better myself" followed by "to serve my country," "money for college," "for job training," "to travel," and "needed time to mature." Among the reasons for enlisting, job/skill training proved to be the greatest discriminator between soldiers who have joined the AAP and those who are not in the program. In terms of why soldier join the Army, self-improvement and job/skill training are very much related and suggest that AAP soldiers to a greater extent are focused on self-improvement and/or career development.

(3) Soldiers attracted to the AAP have specific vocational interests prior to enlisting. These soldiers were more committed to getting the training they wanted. AAP soldiers are willing to forego enlistment incentives for training in a particular occupation.

(4) After they leave the Army, AAP soldiers primarily plan to go to work on a full-time and continue their education on a part-time basis. A greater proportion of the AAP soldiers are:

- (a) Planning to have a job prior to Army separation;
- (b) More confident about their ability to secure a civilian occupation after they leave the Army;
- (c) Planning to take the skills mastered in the Army to a civilian job after their enlistment.

(5) The largest single source of information on the AAP was obtained from an Army Education Center, followed by friends, supervisors, other, recruiters and lastly the news media. New soldiers are obtaining significantly less information from the Army Education Centers and Army recruiters. Education center counselors and recruiters are not selling the program as they have in the past.

(6) With those soldiers who eventually joined the AAP, the AAP had a positive influence in their decisions to enlist in the Army. The AAP is not currently being used as a recruiting incentive, but has the potential of positively influencing the decisions of those soldiers interested in job/skill training.

(7) Soldiers participating in the AAP replied that their completion of the program would be an important factor affecting their decision to reenlist.

(8) The reasons for joining the AAP were "to document job skills," and soldiers believe this will "help them to secure a civilian job" after they leave the Army.

(9) There was no real consensus on why soldiers drop out of the AAP. The only reasons that emerged as positive in importance affecting soldiers decisions to drop out of the program were: that too much time was needed to document WIP hours and that soldiers could not document WIP hours required.

(10) One of the study EEA was to determine soldiers' expectations of: the overall satisfaction of soldiers participating in the program; the value of the AAP in developing job knowledge, skills and abilities; and the value of the AAP at helping to secure civilian employment. Generally, AAP soldier have positive perceptions of the value of the AAP. Soldiers currently entering the AAP have higher expectations of the value of the program. These soldiers place greater value in program's ability to assist them in their development of job knowledge, skills, and abilities and to help them to obtain a civilian job after the Army. Survey data on those soldiers getting ready to separate from the Army does, however, suggest that there are some problems and deficiencies in connection with the AAP. Phase III will identify the operating problems and deficiencies associated with the AAP.

(11) When compared to Not AAP soldiers, soldiers participating in the AAP, believe that they have benefited more from their Army experience. AAP soldiers also recognize greater significance in the value of Army training and particularly Army job experience.

**APPENDIX A - STUDY TASKER**



HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND  
FORT MONROE, VIRGINIA 23651-5000

REPLY TO  
ATTENTION OF

ATPL-B (621-5a)

17 NOV 1988

MEMORANDUM FOR: Director, TRAC-FBHN, ATTN: ATRC-B, Fort Benjamin Harrison, IN 46216

SUBJECT: Army Apprenticeship Program (AAP) Evaluation Study

1. Purpose. This memorandum provides for the performance of the subject study to answer the management issues in paragraph 4.

2. Background. The AAP was created in 1976, to provide enlisted soldiers with the opportunity to document specific work experience and related instruction applicable to military service. The AAP is approved by the Department of Labor (DOL) and each soldier apprentice is registered with Bureau of Apprenticeship and Training of DOL. AAP should in theory aid a soldier in the transition from military service into a civilian occupation. The Army must now make informed decisions regarding the future of the AAP.

3. Problem. The Army needs to know the cost-benefit of internal apprentice soldier performance and whether the original intent of the AAP is being met.

4. Management Issues.

a. What are the benefits the Army derives from the AAP?

b. What are the soldier expectations of the value of AAP and are those expectations being met after the soldier leaves the Army?

c. Do soldiers benefit from participating in the AAP?

d. Does the civilian sector recognize AAP documents as bonafide credentials?

e. What are the deficiencies of the AAP?

f. Should the AAP be continued in its present form, be modified, or discontinued?

5. Approach. The AAP evaluation will be a three phase study effort with each phase satisfying the management issues it addresses. Phase I will, through use of historic data, identify the tangible benefits the Army derives from AAP. Phase II will

ATPL-B (621-5a)

SUBJECT: Army Apprenticeship Program (AAP) Evaluation Study

collect survey data to determine how soldiers have benefited from participation in AAP. Phase III will identify the current deficiencies, AAP program alternatives and make recommendations based on a cost/benefit analysis of program alternatives.

6. Scope. HQ TRAC has determined the following:

a. TRAC-FBHN (ATRC-B), as the study agency, will prepare the study plan, conduct the study, and write the final report.

b. Chief of Cost, TRAC (ATRC-RP), will review the cost portions of the study plan and final report and provide recommendations on approval and certification to the Director, TRAC-FBHN (ATRC-B).

c. The Director, TRAC-FBHN (ATRC-B), is responsible for production and quality oversight for the study and for approval of the study plan, and certification of the final report.

d. The HQ TRADOC DCSPAL is the approval authority for the final report. After certification, the study agency will submit the report to the DCSPAL Education Directorate (ATPL-B), Career Education for final staffing and approval.

e. All requests for cost and performance data will be submitted through Director, Requirements and Programs Directorate, U.S. Army TRADOC Analysis Command, ATRC-RP, Ft Monroe, VA 23651-5143. For cost data, ATTN: Chief of Cost TRAC and for other data, ATTN: Chief, Programs Division. The study agency will also submit appropriate information to initialize and update the TRADOC Study Summary Report maintained by Requirements and Programs Directorate.

f. TRADOC integrating centers and other TRADOC centers and schools will provide assistance as detailed in the study plan.

7. Milestones:

- |   |                 |
|---|-----------------|
| a. Study tasker issued.                 | 10 Nov 88       |
| b. Study Plan Submitted for Approval.   | 18 Nov 88       |
| c. Data Request to HQ TRAC (ATRC-RP)    | 25 Nov 88       |
| d. Phase I - Data Collection & Analysis | Dec 88 - Jan 89 |
| e. Phase I - Interim Report             | Feb 89          |

\* ATPL-B (621-5a)  
SUBJECT: Army Apprenticeship Program (AAP) Evaluation Study

Milestones (Cont'd):

f. Phase II - Survey Development Mar 89  
NOTE: OMB Survey approval time line will impact on total study milestones.

g. Phase IIa - ACES Survey Data Collection Mar - May 89

h. Phase IIa - Interim Report Jun 89

i. Phase III - Methodology Development Jul 89

j. Phase IIb - Follow-up Survey Data Collection & Analysis May - Aug 89

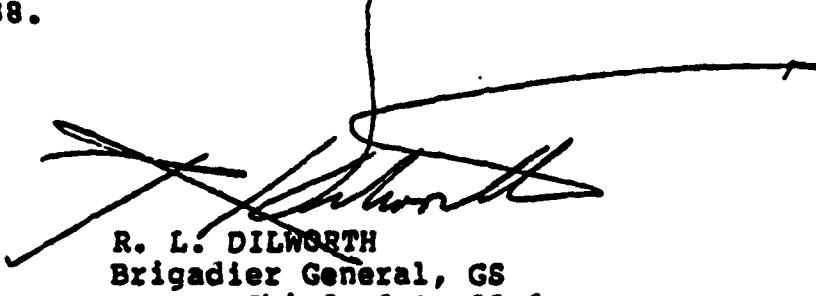
k. Phase IIb - Interim Report Sep 89

l. Final Report/Briefing Nov 89

8. The study sponsor is DCSPAL. HQ TRADOC POC is Ms. Myrtle Williams (ATPL-B), AV 680-3628. HQ TRAC POC is Mr. John Gargaro (ATRC-RPR), AV 680-3117. TRAC-FBHN POC is Mr. Martin Walker (ATRC-B), AV 699-6897.

9. This study is currently not in the TRADOC FY 89 AR 5-5 Study Program dated June 22, 1988.

FOR THE COMMANDER:



R. L. DILWORTH  
Brigadier General, GS  
Deputy Chief of Staff for  
Personnel, Administration  
and Logistics

CF:

U.S. Dept of Labor, Bureau of Apprenticeship and Training,  
ATTN: Mr. Van Erden  
Cdr, USATRAC, ATTN: ATRC/ATRC-TD/ATRC-RM  
Dir, TAPA, Education Div, ATTN: DAPC-PDE  
Dir, USATRAC, RPD, ATTN: ATRC-RP/ATRC-RPR/ATRC-RPP

**APPENDIX B - STUDY PLAN**

**ARMY APPRENTICESHIP PROGRAM (AAP)  
EVALUATION**

**STUDY PLAN**

**Martin R. Walker**

**18 November 1988**

**US ARMY TRAC-FBHN**

**ATTN: ATRC-B, (BLDG. 401-B)**

**FORT BENJAMIN HARRISON, IN 46216-5000**

## STUDY PLAN

### ARMY APPRENTICESHIP PROGRAM (AAP) EVALUATION

1. PURPOSE. The purpose of this study is to identify the benefits that the Army Apprenticeship Program (AAP) provides to soldiers, the Army and the civilian work force and to evaluate the cost of offering the program.

2. REFERENCES:

- a. Study Tasker, 17 November 1988, Army Apprenticeship Program Evaluation Study.
- b. Army Regulation 621-5, 25 July 1986, Army Continuing Education System.
- c. Army Pamphlet 621-200, 18 Dec 1987, Army Apprenticeship Program Procedural Guidance.

3. TERMS OF REFERENCE.

a. BACKGROUND.

(1) An apprenticeship is a prescribed period, where an individual learns a trade through on-the-job training and related instruction. As a result of a July 1975 agreement between the Secretaries of the Army and the US Department of Labor (DOL), the Army developed apprenticeship programs for all Military Occupation Skills (MOS) considered to have civilian counterpart apprenticeship occupations and registered them with DOL, Bureau of Apprenticeship and Training (BAT). The AAP was created to serve as a training documentation system for soldiers rather than a long term training program for career soldiers. The AAP adheres to DOL standards for the required number of hours of work processes and related instruction for a trade.

(2) The AAP was designed to provide a vehicle through which soldiers could document industry-related service acquired skills in a manner acceptable to industry. Thus, soldiers could earn vocational credentials equivalent to those in comparable civilian occupations. Soldiers who document the required training hours as specified by the DOL and approved by the proponent service school should receive a certificate showing completion of the AAP. The DOL certificate of completion should aid the soldier in the transition from military service into a civilian occupation. Also, a letter of partial completion along with documentation showing work processes and related instruction completed, should aid a soldier in the transfer from AAP to a civilian sponsored apprenticeship program.

(3) The goals for the AAP in Army Regulation 621-5, 25 July 1986, Army Continuing Education System (ACES) are consistent with 10 US Code (USC), Section 4302, and Department of Defense (DOD) Directive, Number 1322.8, July 23, 1977. The goals are: to enable enlisted soldiers to record and document specific skills acquired on active duty; to assist military supervisors in making management decisions and work assignments based on documented work experience; to assist enlisted soldiers in obtaining civilian employment and to provide a recruiting incentive for MOSS that have related apprenticeship skills.

b. PROBLEM.

(1) Recently, a review of ACES management placed the AAP under increased scrutiny due to the lack of measures to evaluate program effectiveness. This review focused on the original purpose for the AAP, policy goals and the Total Army Goals.

(2) Currently, more than 14 Major Commands (MACOM) administer the AAP through more than 200 Army Education Centers (AEC). Education center personnel must register new program participants and continuously update soldier work process hours. Program Sponsor Service schools must verify work process hours for soldiers requesting completion certificates. Nearly all the AAP documentation functions are manual operations and are time consuming to complete. This present system, coupled with the fact that there are an estimated 28,000 soldiers actively participating in the program, has raised questions of whether the cost for administering the AAP is greater than the benefits the Army receives from offering the program.

c. IMPACT OF THE PROBLEM.

(1) Performance measures for the AAP are not currently available to determine if its operation fulfills the original purpose or ancillary benefits to the Army. ACES Management needs to determine how vital the AAP is to the Army and to soldier's military and civilian careers.

(2) It is of critical importance to the operation of any of the Army's education programs that the Army will be the benefactor of improvements in recruitment, readiness, and/or retention. Education programs must not merely be a vehicle for which soldiers can transition into civilian careers with less difficulty. The Department of Defense must have a vested interest in providing these programs.

(3) the AAP administrative functions performed by occupational and educational counselors can reduce the amount of time available for other educational or occupational programs. The Army may be better served if these hours were used for other, more effective educational or occupational programs.

d. OBJECTIVES:

(1) Identify intangible benefits and determine through the use of historic data the tangible benefits that may be gained by the Army from offering an apprenticeship program.

(2) Ascertain soldier expectations and attitudes toward the AAP and determine the benefits soldiers gain from participation in the AAP.

(3) Determine the current deficiencies of the AAP, alternative programs and make recommendations based on an analysis of the cost and potential benefits of program alternatives.

e. SCOPE.

(1) The evaluation of the AAP will consist of a three phase study effort. Phase I will review historic data on soldiers who have participated in the AAP and a range of cost for program administration. While it is recognized that participation in the AAP and soldier performance is not necessarily a cause-effect type relationship, the AAP may be one of many factors internal to the Army that stimulates increased motivation and job satisfaction which translates into increased overall soldier performance. An analysis of historic data will allow the Army to determine if the AAP is attracting high quality (top soldiers) from apprenticeable MOSs. If the results provide confirming evidence, the Army can investigate new management initiatives aimed at retaining these soldiers.

(2) The second phase of this evaluation will be the development of a sampling plan and survey instrument and the collection and analysis of survey data to determine the value of the AAP to soldiers. This survey will be administered at ACES centers. The purpose of the Soldier Expectation Survey is to determine preconceived expectations of: the value of participation in the AAP for the soldiers career; the value of job experience gained while on active duty; the outlook in civilian job market and how these factors will affect their decision to stay or leave the service. Also, soldiers will be asked some general questions to identify whether they have positive attitudes towards participation in the AAP and to determine their overall regard for their experience gained while on active duty. These soldiers will be asked to participate in a follow-up survey that will be conducted between zero and three months after they have made the decision to reenlist or leave the Army. The objective of this survey is to determine whether: the soldier benefited by participating in the AAP and whether soldiers' expectations about the AAP, job training, and the civilian job market were realized.

(3) The second phase of this evaluation may also include an Employer Recognition Survey to determine the level of Army skills and experience recognized by industry for full-time employment and apprenticeships. This survey will be designed to gather information from employers who hire soldiers-turned-civilians who desire to continue job training in a civilian apprenticeship program. Also, phase II may include a survey of soldiers who have completed and received an AAP certificate. The scope of these survey efforts will be determined at the first study In Progress Review (IPR).

(4) The third and final phase of the analysis will be to identify the current deficiencies of the AAP, identify program alternatives and make recommendations to continue, discontinue or improve the AAP based on an analysis of the cost and potential benefits of program alternatives.

e. LIMITATIONS. Phase I is limited to a review of historic data on soldiers who have participated in the AAP. Phase II will be limited to surveying those soldiers who have participated in the AAP. In general, survey data is limited to only survey recipient opinions and attitudes.

f. ESSENTIAL ELEMENTS OF ANALYSIS (EEA).

(1) Phase I - essential elements of analysis are:

(a) What are the demographic characteristics of soldiers participating in the AAP?

(b) What are the performance attributes of the soldiers once they are in the AAP and how do they compare to other soldiers in the Army? The following factors will be evaluated:

- Grade Progression
- SQT Scores
- Supervisor Ratings
- Reenlistment Rates
- AWOL, Criminal Actions

(c) How responsive have soldiers been to the AAP?

- What percentage of soldiers participate in the AAP of those eligible? (AAP goal is 15% of soldiers eligible.)

- What percentage of soldiers have completed and received an the AAP certificate?

- How do these percentages compare to other Army inservice education programs?

- How many/percentage of soldiers start an apprenticeship program in the Army and continue it in civilian industry?

(d) What tangible benefits to the Army may be gained by offering the AAP? The following factors will be evaluated:

- Attrition Rates  
- Attracting Critical Skills  
- Recruiting Incentive for Apprenticeship MOSS  
- Better documentation of work experience can be used as a decision tool for military supervisor's to:

- assign new work to soldier apprentices.
- aid in soldier appraisals.

(2) Phase II - essential elements of analysis:

(a) Soldier Expectation Survey will determine:

- Soldiers' perception of the benefits of participating in the AAP.  
- Soldier attitudes towards participation in the AAP.  
- The perceived value of:

- participation in the AAP for their careers
- job experience gained while on active duty.

  
- Their prospects in the civilian job market.  
- Factors affecting soldiers' decisions to reenlist.  
- Soldiers overall regard for the experience gained while on active duty.

(b) Follow-up survey will determine:

- If soldier expectations about the AAP, Army training, and the civilian job market were realized.  
- Whether employers recognized the AAP documents as bonafide credentials.

- If soldiers actually benefit from participation in the AAP through the following factors:

- marketability of job skills
- time needed to secure civilian employment
- starting pay compared to co-workers
- documentation of work experience transferable to civilian apprenticeships.

- What are the soldiers' expectations now about the AAP helping their career?

- Whether Army training adequately prepared them for civilian employment.

- What are the soldiers' attitudes now about participation in the AAP?

- Soldiers' overall regard now for the experience gained while on active duty.

- What recommendations and changes do soldiers perceive are needed for the AAP?

(3) Phase III essential elements of analysis are:

(a) What is the future of civilian Apprenticeship programs?

(b) Do current apprenticeable MOSS represent the job skills needed in the future?

(c) What are the current deficiencies of the AAP?

(d) What other job training alternatives could the Army offer versus the AAP?

(e) What is the estimated yearly cost of administering the AAP and alternative job training programs?

g. CONSTRAINTS. Manpower for this effort will not exceed current levels delineated under paragraph 5(a).

h. ALTERNATIVES.

(1) Status Quo.

(2) Eliminate the AAP.

(3) An improved the AAP incorporating recommended changes to structure and delivery of occupational services.

## i. METHODOLOGY.

(1) The first phase will consist of an evaluation of historic data on soldiers participating in the AAP. An identification of those soldiers attracted to the program and their performance characteristics will be evaluated. A cursory look at the demographic characteristics of soldiers who participate in the AAP will be conducted. In determining the effectiveness of the program, the study will ascertain how the responsive soldiers have been to the program. Phase I will determine, through use of historic data, the benefits that the Army may gain from offering the AAP. Also, an action plan for collecting attitudinal data to determine the benefits of the AAP to soldiers will be developed.

(2) The second phase of this evaluation will be the development of a sampling plan, survey instrument, collection and analysis of survey data. The purpose of this phase is to measure soldier expectations of the value of the AAP and to determine whether those expectations had been realized. A representative sample of soldiers who participated in the AAP and whose first term enlistment decision is within 0-3 months will be selected to participate in the AAP survey. Survey instruments and soldier names will be sent to ACES centers, where the AAP counsellors will administer the written survey to the AAP participants. The survey will be designed to last in duration no more than 30 minutes. The last item on the survey will be a request for an address and phone number where the survey recipient can be contacted three months after they leave the Army. A follow-up survey will be sent to the original sample of survey recipients three months after they either ETS or reenlist in the Army.

(3) Phase three will involve a review of literature, interviews with subject matter experts and collection/analysis of cost data to answer the essential elements of analysis outlined in paragraph 3.f.(2).

## j. RELATED STUDIES.

(1) Kimmel, M. J. & Nogami, G. Y. & Elig, T. W. & Gade P. A. (1985) The 1985 Army Experience Survey, (ARI Technical Report No 8732). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

(2) U.S. Department of Labor, Apprenticeship 2000 - The Public Speaks, Aug 1988, Washington DC.

(3) Latack, J. C. & Josephs, S. L. & Roach, B. L. & Levine, M., Carpenter Apprentices: Comparison of Career Transitions for Men and Women, 1987, Vol. 72, No. 3, 393-400, Journal of Applied Psychology.

4. ENVIRONMENT/THREAT CONSIDERATION. na.

5. SUPPORT AND RESOURCE REQUIREMENTS.

a. Manpower requirements in Professional Staff Years (PSY).

(1) TRAC-FBHN: 0.9 PSY.

(2) Education Directorate, DCSPAL: 0.5 PSY.

(3) Contractor support may be required for the second phase of this evaluation. This support will be contingent on the scope of the survey efforts in phase II, however contractor support should not exceed more than 1.0 PSY. If phase II is needed, TRAC-FBHN will, working through the DCSPAL office determine the scope of the contractor effort and provide technical guidance.

b. Resource Requirements. TDY Travel will be required to conduct the evaluation. The DCSPAL office, TRADOC will provide a fund cite for the following travel:

(1) Defense Manpower Data Center (DMDC), Monterey, CA.

(2) US Army Recruiting Command (USAREC) and Department of Labor, Chicago, IL.

(3) Army Research Institute (ARI), Washington, D.C.

(4) US Army Training and Doctrine Command (TRADOC), Ft. Monroe, VA - (5) visits.

c. Data Requirements. TRAC-FBHN will request cost and performance data through the Director, Requirements and Programs Directorate, U.S. Army TRADOC Analysis Command. The following organizations have been identified as potential sources of data needed to conduct the study:

(1) Defense Manpower Data Center, Monterey, CA.

(2) U.S. Department of Labor, Bureau of Apprenticeship and Training, Washington D.C.

(3) U.S. Army Training Support Center, Ft. Eutis, VA.

6. ADMINISTRATION.

a. Study Sponsor. The office of the Deputy Chief of Staff for Personnel, Administration, and Logistics.

b. Study Agency. TRAC-FBHN is the primary study agent. TRAC-FBHN will conduct the study using procedures outlined in Appendix A, TRADOC PAM 11-8.

(1) Project Officer. Martin R. Walker

(2) Address: Director  
US Army TRAC-FBHN  
Attn: ATRC-B, (Bldg. 401-B)  
Fort Benjamin Harrison, IN 46216-5000

(3) Phone: Commercial - (317) 543-6880/6897  
AUTOVON - 699-6880/6897

c. Study Schedule. Milestones:

<u>Event</u>	<u>Tentative Date</u>
(1) Study Tasker Issued	17 NOV 88
(2) Study Plan Coordination	18 NOV 88
(3) Data Request to HQ TRAC (ATRC-RP)	25 NOV 88
(4) Study Plan Submitted for Approval	23 DEC 89
(5) Phase I - Data Collection & Analysis	DEC-JAN 89
(6) TRADOC IPR/Phase I - Interim Report	FEB 89
(7) Phase IIa - Soldier Expectation Survey Development	MAR 89
(8) Expectation Survey Data Collection	MAR-MAY 89
(9) Phase IIb - Follow up Survey Development/Approval	MAY 89
(10) Phase IIa - Interim Report	JUN 89
(11) Phase III - Methodology Development	JUL 89
(12) Phase III - Data Collection & Analysis	JUL-SEP 89
(13) Follow up Survey Data Collection	MAY-AUG 89,
(14) TRADOC IPR	SEP 89
(15) Phase IIb - Interim Report	SEP 89
(16) Final Report	NOV 89

Note: 1. Contingent on Office of Management & Budget (OMB) approval.

7. CORRELATION.

- a. Study ACN: 73991
- b. AR 5-5 category: 8
- c. Study priority within the TRADOC Program: TBD

8. CONCURRENCE.

CONCURRENCE			
AGENCY	AGENCY REPRESENTATIVE (Signature)	OFFICE SYMBOL	AUTOVON NUMBER
TRADOC, DCSPAL		ATPL-B	680-3628

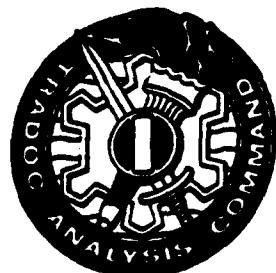
**APPENDIX C - SURVEY INSTRUMENT(S)**

SURVEY APPROVAL AUTHORITY: US ARMY SOLDIER SUPPORT CENTER  
SURVEY CONTROL NUMBER: ATNC-AO-89-24-B  
RCS: MILPC-3

# ARMY APPRENTICESHIP PROGRAM (AAP)

## EXIT SURVEY

For use of this form, see AR 5-5;  
the proponent agency is TRADOC



TRADOC ANALYSIS COMMAND -  
FORT BENJAMIN HARRISON

DA FORM 6793 (One-Time), JUN 89

## ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY

As a soldier who has enrolled/will enroll in the AAP, you have information regarding this program and its policies. We are interested in what you think about the AAP, and how you believe you will benefit from it. We also are interested in your thoughts about your decision to enlist/reenlist. Your answers are important because this information will affect Army policies.

Your opinions and plans will provide valuable input to the AAP development. Your answers will be treated as confidential. Thank you for your cooperation.

DIRECTIONS: For most of the items, circle one response for each question. Follow the special instructions for the other items.

1. Are you currently enrolled in or planning to enroll in the AAP?

1. CURRENTLY ENROLLED
2. PLANNING TO ENROLL
3. NOT ENROLLED AND DO NOT PLAN TO ENROLL

-> STOP, RETURN THIS  
QUESTIONNAIRE TO  
YOUR ACES COUNSELOR.

### ENLISTMENT/REENLISTMENT INTENTIONS

I would like to ask some questions about what you signed up for when you enlisted.

2. What enlistment incentives did you receive when you first joined the Army?

1. ENLISTMENT BONUS, NO ARMY COLLEGE FUND (ACF)
2. ACF, NO ENLISTMENT BONUS
3. BOTH ENLISTMENT BONUS AND ACF
4. NEITHER ENLISTMENT BONUS NOR ACF

3. Before you enlisted in the Army, did you have specific job/skill training that you wanted to get from the Army?

1. YES -> CONTINUE WITH QUESTION 4
2. NO -> GO TO QUESTION 6 ON PAGE 2

**ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY**

**4. (IF YOUR ANSWER IS "YES" TO QUESTION 3) Did you enlist/contract for that specific job/skill training?**

1. YES -> GO TO QUESTION 6
2. NO -> CONTINUE WITH QUESTION 5

**5. (IF YOUR ANSWER IS "NO" TO QUESTION 4) What was the reason for not enlisting for that specific job/skill training?**

1. I WAS NOT QUALIFIED
  2. TRAINING WAS NOT AVAILABLE
  3. REQUIRED A LONGER ENLISTMENT
  4. NO ENLISTMENT BONUS
  5. NO ARMY COLLEGE FUND
  6. RECRUITER TALKED ME INTO ANOTHER JOB (MOS)
  7. OTHERS TALKED ME INTO ANOTHER JOB (MOS)
  8. OTHER (PLEASE LIST) \_\_\_\_\_
- 
- 
- 

**6. Below is a list of reasons that people give for joining the Army. Using the scale on the right, circle the number that best indicates how important each reason was in your decision to join the Army.**

(CIRCLE ONE NUMBER FOR ITEM A-M) REASONS FOR JOINING THE ARMY	VERY IMPORTANT	IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT
A. TO SERVE MY COUNTRY.....	1	2	3	4	5
B. CHANCE TO BETTER MYSELF.....	1	2	3	4	5
C. FAMILY TRADITION TO SERVE.....	1	2	3	4	5
D. NEEDED TIME TO MATURE.....	1	2	3	4	5
E. TO PROVE THAT I COULD MAKE IT.....	1	2	3	4	5
F. I WAS UNEMPLOYED.....	1	2	3	4	5
G. TO BE AWAY FROM HOME ON MY OWN.....	1	2	3	4	5
H. EARN MORE MONEY.....	1	2	3	4	5
I. TRAVEL.....	1	2	3	4	5
J. GET AWAY FROM A PERSONAL PROBLEM...	1	2	3	4	5
K. TO GET JOB/SKILL TRAINING.....	1	2	3	4	5
L. TO GET AN ENLISTMENT BONUS.....	1	2	3	4	5
M. TO GET MONEY FOR A COLLEGE EDUCATION	1	2	3	4	5

## ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY

7. In general, how satisfied are you so far with your Army experience?

1. VERY SATISFIED
2. SATISFIED
3. NEITHER SATISFIED NOR DISSATISFIED
4. DISSATISFIED
5. VERY DISSATISFIED

8. Using the scale on the right, circle the number that best indicates how valuable you believe each of the following items will be to you when you leave the Army?

(CIRCLE ONE NUMBER FOR ITEM A - C)	VERY VALUABLE	VALUABLE	SOMEWHAT VALUABLE	NOT VERY VALUABLE	NOT AT ALL VALUABLE
A. TOTAL ARMY EXPERIENCE.....	1	2	3	4	5
B. ARMY TRAINING .....	1	2	3	4	5
C. ARMY JOB EXPERIENCE .....	1	2	3	4	5

9. How many months do you have remaining in your present Army obligation?

\_\_\_\_\_ NUMBER OF MONTHS

10. If at sometime you decide to separate from the Army, how easy do you think it will be to get a job in your present career field?

1. VERY EASY
2. EASY
3. SOMEWHAT EASY
4. DIFFICULT
5. VERY DIFFICULT

11. Which of the following best describes your feelings about reenlistment?

1. DEFINITELY LEAVE AFTER MY PRESENT OBLIGATION
2. PROBABLY LEAVE AFTER MY PRESENT OBLIGATION
3. UNDECIDED
4. PROBABLY STAY BEYOND MY PRESENT OBLIGATION
5. DEFINITELY STAY BEYOND MY PRESENT OBLIGATION

—>GO TO Q12

—>CONTINUE TO Q21

## ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY

### FUTURE PLANS

I would like to ask you some questions about your plans after you leave the Army.

12. After you leave the Army, which of the following best describes your employment plans?

1. WORK FULL-TIME (AT LEAST 35 HOURS PER WEEK)
2. WORK PART-TIME (LESS THAN 35 HOURS PER WEEK)
3. I HAVE NO PLANS TO WORK

13. After you leave the Army, do you plan to enroll in any type of training or schooling?

1. YES, WILL ENROLL FULL-TIME
2. YES, WILL ENROLL PART-TIME
3. NO, I HAVE NO PLANS FOR CONTINUING EDUCATION -> go to q15

14. (IF YOUR ANSWER IS "YES" TO QUESTION 13) What type of training or schooling do you plan to enroll?

1. HIGH SCHOOL COURSES
2. VOCATIONAL, OR TECHNICAL COURSES
3. JUNIOR (2-YEAR) COLLEGE COURSES
4. COLLEGE (4-YEAR) COURSES

15. Do you plan to look for a job that requires similar job skills to those you learned in the Army?

1. YES
2. NO
3. DON'T KNOW

16. Do you plan to have a full-time job before you leave the Army?

1. YES
2. NO
3. DON'T KNOW

## ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY

17. Are you taking any education courses directly related to your MOS?

1. YES
2. NO

18. (IF YOUR ANSWER IS "YES" TO QUESTION 17) What type of courses?

1. HIGH SCHOOL COURSES
2. VOCATIONAL, OR TECHNICAL COURSES
3. JUNIOR (2-YEAR) COLLEGE COURSES
4. COLLEGE (4-YEAR) COURSES

19. Below is a list of reasons that people give for getting out of the Army. Using the scale on the right, circle the number that best represents how important each reason would be in your decision on whether to leave the Army.

(CIRCLE ONE NUMBER FOR ITEM A - N) REASONS FOR LEAVING THE ARMY	VERY IMPORTANT	IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT
A. TO GET A CIVILIAN JOB I PREFER.....	1	2	3	4	5
B. MILITARY PAY AND ALLOWANCES TOO LOW.....	1	2	3	4	5
C. WORK HOURS WERE TOO LONG.....	1	2	3	4	5
D. NO CREDIT FOR DOING A GOOD JOB.....	1	2	3	4	5
E. ENROLLING IN CIVILIAN EDUCATION/TRAINING.....	1	2	3	4	5
F. COULDN'T GET SKILL TRAINING YOU WANTED...	1	2	3	4	5
G. COULDN'T SELECT A JOB YOU WANTED.....	1	2	3	4	5
H. COULDN'T GET JOB LOCATION YOU WANTED.....	1	2	3	4	5
I. NOT ENOUGH INTERESTING WORK.....	1	2	3	4	5
J. TOO MANY MILITARY RULES AND REGULATIONS..	1	2	3	4	5
K. I/MY FAMILY DO NOT LIKE ARMY LIFE.....	1	2	3	4	5
L. TOO MANY JOB RELATED MOVES.....	1	2	3	4	5
M. UNEQUAL TREATMENT DUE TO RACE, SEX, OR CREED.....	1	2	3	4	5
N. JOB DISSATISFACTION.....	1	2	3	4	5

20. Now, in your own words, what is the most important thing that the Army could do to get you to reenlist?

(PLEASE PRINT YOUR ANSWER)

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## ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY

### AAP QUESTIONS

I would like to ask some questions about your thoughts about the AAP.

21. How did you first find out about the AAP?

1. EDUCATION CENTER COUNSELOR
2. CHAIN OF COMMAND
3. NEWS MEDIA (POST NEWSPAPER, ARTICLES, POSTERS)
4. RECRUITER TOLD ME ABOUT THE AAP WHEN I ENLISTED
5. FRIENDS TOLD ME ABOUT THE AAP
6. OTHER (PLEASE LIST) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

22. Did you know about the AAP before you enlisted?

1. YES -> CONTINUE WITH QUESTION 23
2. NO -> GO TO QUESTION 24

23. How important was participation in the AAP be in your decision to enlist in the Army?

1. VERY IMPORTANT
2. IMPORTANT
3. SOMEWHAT IMPORTANT
4. NOT VERY IMPORTANT
5. NOT IMPORTANT AT ALL

24. How important will completion of the AAP be in your decision to reenlist in the Army?

1. VERY IMPORTANT
2. IMPORTANT
3. SOMEWHAT IMPORTANT
4. NOT VERY IMPORTANT
5. NOT IMPORTANT AT ALL

## ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY

25. Below is a list of reasons given for joining the AAP. Using the scale on the right, circle the number that best represents how important each reason was for joining the AAP. Also, please list other reasons if not already specified.

(CIRCLE ONE NUMBER FOR ITEM A - F) REASON FOR JOINING AAP	VERY IMPORTANT	IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT
A. DOCUMENT JOB SKILLS.....	1	2	3	4	5
B. WILL HELP MY MILITARY CAREER.....	1	2	3	4	5
C. HELP ME TO GET PROMOTED.....	1	2	3	4	5
D. MORE INTENSIVE JOB TRAINING.....	1	2	3	4	5
E. TO GET MORE INTERESTING/ CHALLENGING WORK.....	1	2	3	4	5
F. HELP ME TO GET A CIVILIAN JOB.....	1	2	3	4	5

26. Now, in your own words, what is the most important reason you joined the AAP?

(PLEASE PRINT YOUR ANSWER) \_\_\_\_\_

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27. In general, how satisfied are you with the AAP?

1. VERY SATISFIED
2. SATISFIED
3. NEITHER SATISFIED NOR DISSATISFIED
4. DISSATISFIED
5. VERY DISSATISFIED

## ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY

28. How much has your experience with the AAP helped you to develop job knowledge, skills, and abilities that might increase your value as an employee of a civilian company?

1. VERY MUCH
2. MUCH
3. SOMEWHAT
4. VERY LITTLE
5. NOT AT ALL

29. How valuable do you think the AAP will be for getting a civilian job?

1. VERY VALUABLE
2. VALUABLE
3. SOMEWHAT VALUABLE
4. NOT VERY VALUABLE
5. NOT AT ALL VALUABLE

### A FEW LAST BACKGROUND ITEMS

Finally, I would like to ask some questions about yourself.

30. Are you:

1. MALE
2. FEMALE

31. What year did you first enter active service?

YEAR OF ENTRY: 19\_\_\_\_\_

32. What is your year of birth?

YEAR OF BIRTH: 19\_\_\_\_\_

33. Which of the following best describes your racial identification?

1. AMERICAN INDIAN OR ALASKAN NATIVE
2. ASIAN OR PACIFIC ISLANDER
3. BLACK
4. WHITE
5. OTHER (SPECIFY) \_\_\_\_\_

ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY

34. Are you of Hispanic origin or descent?

1. YES
2. NO

35. What is your current marital status?

1. MARRIED
2. WIDOWED
3. DIVORCED (NOT REMARRIED)
4. SEPARATED (NOT REMARRIED)
5. SINGLE, NEVER MARRIED

36. What state were you living in or did you consider your home when you joined the Army? (PRINT NAME OF COUNTRY IF OUTSIDE U.S.)

NAME OF STATE: \_\_\_\_\_

37. How many terms of active enlistment have you served?

1. LESS THAN 1 ENLISTMENT
2. 1 ENLISTMENT
3. 2 ENLISTMENTS
4. 3 ENLISTMENTS
5. 4 OR MORE ENLISTMENTS

38. What is the highest level of education that you had completed when you entered the Army?

1. LESS THAN HIGH SCHOOL (1 TO 8 YEARS)
2. SOME HIGH SCHOOL BUT NO DIPLOMA OR CERTIFICATE
3. GENERAL EDUCATION DIPLOMA (GED)
4. CERTIFICATE OF HIGH SCHOOL COMPLETION/ATTENDANCE
5. HIGH SCHOOL GRADUATE
6. VOCATIONAL, OR TECHNICAL SCHOOLING, BUT DID NOT GRADUATE
7. VOCATIONAL OR TECHNICAL SCHOOL GRADUATE
8. SOME COLLEGE, BUT DID NOT GRADUATE
9. COLLEGE GRADUATE

ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY

39. What is the highest grade or degree that you completed while you were in the Army?

1. LESS THAN HIGH SCHOOL (1 TO 8 YEARS)
2. SOME HIGH SCHOOL BUT NO DIPLOMA OR CERTIFICATE
3. GENERAL EDUCATION DIPLOMA (GED)
4. CERTIFICATE OF HIGH SCHOOL COMPLETION/ATTENDANCE
5. HIGH SCHOOL GRADUATE
6. VOCATIONAL, OR TECHNICAL SCHOOLING, BUT DID NOT GRADUATE
7. VOCATIONAL OR TECHNICAL SCHOOL GRADUATE
8. SOME COLLEGE, BUT DID NOT GRADUATE
9. COLLEGE GRADUATE

40. How long were you obligated to serve during your "first" tour of active service in the Army?

1. 2 YEARS
2. 3 YEARS
3. 4 YEARS
4. 5 OR MORE YEARS
5. OTHER (SPECIFY) \_\_\_\_\_

41. (IF THE ANSWER IS "2 YEARS" TO QUESTION 40) How important was the availability of a "2 year" tour option to your decision to enlist in the Army?

1. VERY IMPORTANT
2. IMPORTANT
3. SOMEWHAT IMPORTANT
4. NOT VERY IMPORTANT
5. NOT IMPORTANT AT ALL

42. What is your current rank/grade level?

- |       |       |       |
|-------|-------|-------|
| 1. E1 | 4. E4 | 7. E7 |
| 2. E2 | 5. E5 | 8. E8 |
| 3. E3 | 6. E6 | 9. E9 |

43. What is your current MOS? \_\_\_\_\_

**ARMY APPRENTICESHIP PROGRAM (AAP) ENTRY SURVEY**

**44. Use the space below to tell us about your experience with the AAP or your recommendations how the AAP could better serve soldiers?**

---

**THIS COMPLETES THE QUESTIONNAIRE.**

**PLEASE LOOK OVER YOUR ANSWERS TO BE SURE YOU HAVE NOT OMITTED ANY  
QUESTIONS THAT APPLIED TO YOU.**

**THANK YOU FOR YOUR COOPERATION AND ASSISTANCE.**

SURVEY APPROVAL AUTHORITY: US ARMY SOLDIER SUPPORT CENTER  
SURVEY CONTROL NUMBER: ATNC-AO-89-24-B  
RCS: MILPC-3

# ARMY APPRENTICESHIP PROGRAM (AAP)

## ENTRY SURVEY

For use of this form, see AR 6-6;  
the proponent agency is TRADOC



TRADOC ANALYSIS COMMAND -  
FORT BENJAMIN HARRISON

DA FORM 6792 (One-Time), JUN 89

**PRIVACY ACT STATEMENT  
FOR THE  
ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY**

**AUTHORITY:**

Public Law 93-573  
10 United States Code 3012  
Army Regulation 600-46  
Army Regulation 621-5  
Department of Army Pamphlet 621-200

**PRINCIPAL PURPOSE:**

Results from the AAP Exit Survey will be used to evaluate the effectiveness of the AAP.

**ROUTINE USES:**

The TRADOC Analysis Command - Fort Benjamin Harrison has primary research and analysis responsibility. The information collected in this survey will be linked to Army files and will be used for research and analysis purposes only.

**DISCLOSURE:**

Providing information in this questionnaire is voluntary. Failure to respond to any particular question will not result in any penalty. However, your SSN and home address information is considered critical. To learn if you have benefitted from participation in the Army and the AAP, we must be able to contact you in the future. Your SSN and home address information will be used for identification and locating purposes only.

## ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY

We are interested in your thoughts and feelings about your Army experience, your expectations of the future, and for those of you who have participated in the AAP how you may have benefitted from being apart of that program. We also are interested in your thoughts about your decision to enlist /reenlist. Your answers are important because this information will affect Army policies.

To learn if you have benefitted from participation in the Army and the AAP, we would like to be able to contact you sometime in the future. Your answers will be treated as confidential. Thank you for your cooperation.

1. We would like to start by asking where we can locate you three months from now. Please complete the following information.

YOUR NAME: \_\_\_\_\_  
First, Last

PHONE: (\_\_\_\_) \_\_\_\_-\_\_\_\_ SSN: \_\_\_\_-\_\_\_\_-\_\_\_\_\_  
Area Code      Number      Social Security #

MAILING ADDRESS:

Street

City, State, ZIP

2. If we are unable to contact you at the above address, please list two people who would be able to tell us your address, such as a relative (Mother, Father, Aunt or an Uncle) or a friend.

A. RELATIVE/FRIEND'S NAME:                    B. RELATIVE/FRIEND'S NAME:

First, Last

First, Last

RELATIONSHIP: \_\_\_\_\_

RELATIONSHIP: \_\_\_\_\_

PHONE: (\_\_\_\_) \_\_\_\_-\_\_\_\_  
Area Code      Number

PHONE: (\_\_\_\_) \_\_\_\_-\_\_\_\_  
Area Code      Number

MAILING ADDRESS:

MAILING ADDRESS:

Street

Street

City, State, ZIP

City, State, ZIP

## ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY

DIRECTIONS: For most of the items, circle one response for each question. Follow the special instructions for the other items.

### ENLISTMENT/REENLISTMENT INTENTIONS

I would like to ask some questions about what you signed up for when you enlisted.

3. What enlistment incentives did you receive when you first joined the Army?

1. ENLISTMENT BONUS, NO ARMY COLLEGE FUND (ACF)
2. ACF, NO ENLISTMENT BONUS
3. BOTH ENLISTMENT BONUS AND ACF
4. NEITHER ENLISTMENT BONUS NOR ACF

4. Before you enlisted in the Army, did you have specific job/skill training that you wanted to get from the Army?

1. YES → CONTINUE WITH QUESTION 5
2. NO → GO TO QUESTION 7, PAGE 3

5. (IF YOUR ANSWER IS "YES" TO QUESTION 4) Did you enlist/contract for that specific job/skill training?

1. YES → GO TO QUESTION 7, PAGE 3
2. NO → CONTINUE WITH QUESTION 6

6. (IF YOUR ANSWER IS "NO" TO QUESTION 5) What was the reason for not enlisting for that specific job/skill training?

1. I WAS NOT QUALIFIED
2. TRAINING WAS NOT AVAILABLE
3. REQUIRED A LONGER ENLISTMENT
4. NO ENLISTMENT BONUS
5. NO ARMY COLLEGE FUND
6. RECRUITER TALKED ME INTO ANOTHER JOB (MOS)
7. OTHERS TALKED ME INTO ANOTHER JOB (MOS)
8. OTHER (PLEASE LIST) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY**

7. Below is a list of reasons that people give for joining the Army. Using the scale on the right, circle the number that best indicates how important each reason was in your decision to join the Army.

<b>(CIRCLE ONE NUMBER FOR ITEM A-M)</b> <b>REASONS FOR JOINING THE ARMY</b>	<b>VERY IMPORTANT</b>	<b>IMPORTANT</b>	<b>SOMEWHAT IMPORTANT</b>	<b>NOT VERY IMPORTANT</b>	<b>NOT AT ALL IMPORTANT</b>
A. TO SERVE MY COUNTRY.....	1	2	3	4	5
B. CHANCE TO BETTER MYSELF.....	1	2	3	4	5
C. FAMILY TRADITION TO SERVE.....	1	2	3	4	5
D. NEEDED TIME TO MATURE.....	1	2	3	4	5
E. TO PROVE THAT I COULD MAKE IT.....	1	2	3	4	5
F. I WAS UNEMPLOYED.....	1	2	3	4	5
G. TO BE AWAY FROM HOME ON MY OWN.....	1	2	3	4	5
H. EARN MORE MONEY.....	1	2	3	4	5
I. TRAVEL.....	1	2	3	4	5
J. GET AWAY FROM A PERSONAL PROBLEM....	1	2	3	4	5
K. TO GET JOB/SKILL TRAINING.....	1	2	3	4	5
L. TO GET AN ENLISTMENT BONUS.....	1	2	3	4	5
M. TO GET MONEY FOR A COLLEGE EDUCATION	1	2	3	4	5

8. In general, how satisfied are you so far with your Army experience?

1. VERY SATISFIED
2. SATISFIED
3. NEITHER SATISFIED NOR DISSATISFIED
4. DISSATISFIED
5. VERY DISSATISFIED

9. Using the scale on the right, circle the number that best indicates how valuable you believe each of the following items will be to you when you leave the Army?

<b>(CIRCLE ONE NUMBER FOR ITEM A - C)</b>	<b>VERY VALUABLE</b>	<b>VALUABLE</b>	<b>SOMEWHAT VALUABLE</b>	<b>NOT VERY VALUABLE</b>	<b>NOT AT ALL VALUABLE</b>
A. TOTAL ARMY EXPERIENCE.....	1	2	3	4	5
B. ARMY TRAINING .....	1	2	3	4	5
C. ARMY JOB EXPERIENCE .....	1	2	3	4	5

ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY

10. How many months do you have remaining in your present Army obligation?

\_\_\_\_\_ NUMBER OF MONTHS

11. When you separate from the Army, how easy do you think it will be to get a job in your present career field?

1. VERY EASY
2. EASY
3. SOMEWHAT EASY
4. DIFFICULT
5. VERY DIFFICULT

12. Which of the following best describes your feelings about reenlistment?

1. DEFINITELY LEAVE AFTER MY PRESENT OBLIGATION
  2. PROBABLY LEAVE AFTER MY PRESENT OBLIGATION
  3. UNDECIDED
  4. PROBABLY STAY BEYOND MY PRESENT OBLIGATION
  5. DEFINITELY STAY BEYOND MY PRESENT OBLIGATION
- > GO TO Q13  
--> CONTINUE TO Q23

FUTURE PLANS

I would like to ask you some questions about your plans after you leave the Army.

13. After you leave the Army, which of the following best describes your employment plans?

1. WORK FULL-TIME (AT LEAST 35 HOURS PER WEEK)
2. WORK PART-TIME (LESS THAN 35 HOURS PER WEEK)
3. I HAVE NO PLANS TO WORK

14. After you leave the Army, do you plan to enroll in any type of training or schooling?

1. YES, WILL ENROLL FULL-TIME
  2. YES, WILL ENROLL PART-TIME
  3. NO, I HAVE NO PLANS FOR CONTINUING EDUCATION
- > GO TO Q15

ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY

15. (IF YOUR ANSWER IS "YES" TO QUESTION 14) What type of training or schooling do you plan to enroll?

1. HIGH SCHOOL COURSES
2. VOCATIONAL, OR TECHNICAL COURSES
3. JUNIOR (2-YEAR) COLLEGE COURSES
4. COLLEGE (4-YEAR) COURSES

16. Do you plan to look for a job that requires similar job skills to those you learned in the Army?

1. YES
2. NO
3. DON'T KNOW

17. Do you plan to have a full-time job before you leave the Army?

1. YES
2. NO
3. DON'T KNOW

18. Have you taken any education courses directly related to your AAP military occupational specialty?

1. YES → CONTINUE WITH QUESTION 19
2. NO → GO TO QUESTION 20, PAGE 6

19. (IF YOUR ANSWER IS "YES" TO QUESTION 18) What type of courses?

1. HIGH SCHOOL COURSES
2. VOCATIONAL, OR TECHNICAL COURSES
3. COURSES IN COMPUTER BASED OR ASSISTED INSTRUCTION
4. ARMY CORRESPONDENCE COURSES
5. LOWER LEVEL COLLEGE (FRESHMAN, SOPHOMORE COURSES)
6. UPPER LEVEL COLLEGE (JUNIOR, SENIOR COURSES)

**ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY**

20. Below is a list of reasons that people give for getting out of the Army. Using the scale on the right, circle the number that best represents how important each reason would be in your decision on whether to leave the Army.

<u>(CIRCLE ONE NUMBER FOR ITEM A - N)</u> REASONS FOR LEAVING THE ARMY	VERY IMPORTANT	IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT
A. TO GET A CIVILIAN JOB I PREFER.....	1	2	3	4	5
B. MILITARY PAY AND ALLOWANCES TOO LOW.....	1	2	3	4	5
C. WORK HOURS WERE TOO LONG.....	1	2	3	4	5
D. NO CREDIT FOR DOING A GOOD JOB.....	1	2	3	4	5
E. ENROLLING IN CIVILIAN EDUCATION/TRAINING.....	1	2	3	4	5
F. COULDN'T GET SKILL TRAINING YOU WANTED....	1	2	3	4	5
G. COULDN'T SELECT A JOB YOU WANTED.....	1	2	3	4	5
H. COULDN'T GET JOB LOCATION YOU WANTED.....	1	2	3	4	5
I. NOT ENOUGH INTERESTING WORK.....	1	2	3	4	5
J. TOO MANY MILITARY RULES AND REGULATIONS..	1	2	3	4	5
K. I/MY FAMILY DO NOT LIKE ARMY LIFE.....	1	2	3	4	5
L. TOO MANY JOB RELATED MOVES.....	1	2	3	4	5
M. UNEQUAL TREATMENT DUE TO RACE, SEX, OR CREED.....	1	2	3	4	5
N. JOB DISSATISFACTION.....	1	2	3	4	5

21. Now, in your own words, what is your most important reason for separating from the Army?

(PLEASE PRINT YOUR ANSWER) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

22. Now, in your own words, what is the most important thing that the Army could have done to get you to reenlist?

(PLEASE PRINT YOUR ANSWER) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY

### AAP QUESTIONS

I would like to ask some questions about your thoughts about the AAP.

23. How did you first find out about the AAP?

1. EDUCATION CENTER COUNSELOR
2. CHAIN OF COMMAND
3. NEWS MEDIA (POST NEWSPAPER, ARTICLES, POSTERS)
4. RECRUITER TOLD ME ABOUT THE AAP WHEN I ENLISTED
5. FRIENDS TOLD ME ABOUT THE AAP
6. OTHER (PLEASE LIST) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

24. Did you know about the AAP before you enlisted?

1. YES → CONTINUE WITH QUESTION 25
2. NO → GO TO QUESTION 26

25. How important was participation in the AAP be in your decision to enlist in the Army?

1. VERY IMPORTANT
2. IMPORTANT
3. SOMEWHAT IMPORTANT
4. NOT VERY IMPORTANT
5. NOT IMPORTANT AT ALL

26. Which best describes your current enrollment status in the AAP?

1. I WAS ENROLLED, BUT DROPPED OUT OF THE AAP → CONTINUE TO Q27
2. I HAVE NEVER BEEN ENROLLED → GO TO Q34
3. I AM ENROLLED AND ACTIVELY PARTICIPATING → GO TO Q28
4. I AM ENROLLED, BUT NOT ACTIVELY PARTICIPATING → GO TO Q28

**ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY**

27. Below is a list of reasons given for dropping out of the AAP. Using the scale on the right, circle the number that best represents how important each reason was for dropping out of the AAP. Also, please list other reasons if not already specified.

(CIRCLE ONE NUMBER FOR ITEM A - F) REASONS FOR DROPPING OUT	VERY IMPORTANT	IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT
A. MY PRIMARY MOS CHANGED.....	1	2	3	4	5
B. COULDN'T DOCUMENT WORK IN PROCESS HOURS IN CURRENT JOB.....	1	2	3	4	5
C. CORRESPONDENCE COURSES TOO DIFFICULT..	1	2	3	4	5
D. TOO MUCH TIME NEEDED TO DOCUMENT WORK IN PROCESS HOURS.....	1	2	3	4	5
E. BECAME DISSATISFIED WITH THE AAP.....	1	2	3	4	5
F. OTHERS (PLEASE LIST)	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5
	1	2	3	4	5

28. Below is a list of reasons given for joining the AAP. Using the scale on the right, circle the number that best represents how important each reason was for joining the AAP. Also, please list other reasons if not already specified.

(CIRCLE ONE NUMBER FOR ITEM A - F) REASON FOR JOINING AAP	VERY IMPORTANT	IMPORTANT	SOMEWHAT IMPORTANT	NOT VERY IMPORTANT	NOT AT ALL IMPORTANT
A. DOCUMENT JOB SKILLS.....	1	2	3	4	5
B. WILL HELP MY MILITARY CAREER.....	1	2	3	4	5
C. HELP ME TO GET PROMOTED.....	1	2	3	4	5
D. MORE INTENSIVE JOB TRAINING.....	1	2	3	4	5
E. TO GET MORE INTERESTING/ CHALLENGING WORK.....	1	2	3	4	5
F. HELP ME TO GET A CIVILIAN JOB.....	1	2	3	4	5

ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY

29. Now, in your own words, what is the most important reason you joined the AAP?

(PLEASE PRINT YOUR ANSWER) \_\_\_\_\_

30. How important will completion of the AAP be in your decision to reenlist in the Army?

1. VERY IMPORTANT
2. IMPORTANT
3. SOMEWHAT IMPORTANT
4. NOT VERY IMPORTANT
5. NOT IMPORTANT AT ALL

31. In general, how satisfied are you with the AAP?

1. VERY SATISFIED
2. SATISFIED
3. NEITHER SATISFIED NOR DISSATISFIED
4. DISSATISFIED
5. VERY DISSATISFIED

32. How much has your experience with the AAP helped you to develop job knowledge, skills, and abilities that you might increase your value as an employee of a civilian company?

1. VERY MUCH
2. MUCH
3. SOMEWHAT
4. VERY LITTLE
5. NOT AT ALL

ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY

33. How valuable do you think the AAP in helping you obtain a civilian job?

1. VERY VALUABLE
2. VALUABLE
3. SOMEWHAT VALUABLE
4. NOT VERY VALUABLE
5. NOT AT ALL VALUABLE

A FEW LAST BACKGROUND ITEMS

Finally, I would like to ask some questions about yourself.

34. Are you:

1. MALE
2. FEMALE

35. What year did you first enter active service?

YEAR OF ENTRY: 19\_\_\_\_\_

36. What is your year of birth?

YEAR OF BIRTH: 19\_\_\_\_\_

37. Which of the following best describes your racial identification?

1. AMERICAN INDIAN OR ALASKAN NATIVE
2. ASIAN OR PACIFIC ISLANDER
3. BLACK
4. WHITE
5. OTHER (SPECIFY) \_\_\_\_\_

38. Are you of Hispanic origin or descent?

1. YES
2. NO

ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY

39. What was your current marital status?

1. MARRIED
2. WIDOWED
3. DIVORCED (NOT REMARRIED)
4. SEPARATED (NOT REMARRIED)
5. SINGLE, NEVER MARRIED

40. How many terms of active enlistment have you served?

1. LESS THAN 1 ENLISTMENT
2. 1 ENLISTMENT
3. 2 ENLISTMENTS
4. 3 ENLISTMENTS
5. 4 OR MORE ENLISTMENTS

41. What is the highest level of education that you had completed when you entered the Army?

1. LESS THAN HIGH SCHOOL (1 TO 8 YEARS)
2. SOME HIGH SCHOOL BUT NO DIPLOMA OR CERTIFICATE
3. GENERAL EDUCATION DIPLOMA (GED)
4. CERTIFICATE OF HIGH SCHOOL COMPLETION/ATTENDANCE
5. HIGH SCHOOL GRADUATE
6. VOCATIONAL, OR TECHNICAL SCHOOLING, BUT DID NOT GRADUATE
7. VOCATIONAL OR TECHNICAL SCHOOL GRADUATE
8. SOME COLLEGE, BUT DID NOT GRADUATE
9. COLLEGE GRADUATE

42. What is the highest grade or degree that you completed while you were in the Army?

1. LESS THAN HIGH SCHOOL (1 TO 8 YEARS)
2. SOME HIGH SCHOOL BUT NO DIPLOMA OR CERTIFICATE
3. GENERAL EDUCATION DIPLOMA (GED)
4. CERTIFICATE OF HIGH SCHOOL COMPLETION/ATTENDANCE
5. HIGH SCHOOL GRADUATE
6. VOCATIONAL, OR TECHNICAL SCHOOLING, BUT DID NOT GRADUATE
7. VOCATIONAL OR TECHNICAL SCHOOL GRADUATE
8. SOME COLLEGE, BUT DID NOT GRADUATE
9. COLLEGE GRADUATE

ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY

43. What state were you living in or did you consider your home when you joined the Army? (PRINT NAME OF COUNTRY IF OUTSIDE U.S.)

NAME OF STATE: \_\_\_\_\_

44. How long were you obligated to serve during your "first" tour of active service in the Army?

1. 2 YEARS
2. 3 YEARS
3. 4 YEARS
4. 5 OR MORE YEARS
5. OTHER (SPECIFY) \_\_\_\_\_

45. (IF THE ANSWER IS "2 YEARS" TO QUESTION 38) How important was the availability of a two-year tour option to your decision to enlist in the Army?

1. VERY IMPORTANT
2. IMPORTANT
3. SOMEWHAT IMPORTANT
4. NOT VERY IMPORTANT
5. NOT IMPORTANT AT ALL

46. What is your current rank/grade level?

- |       |       |       |
|-------|-------|-------|
| 1. E1 | 4. E4 | 7. E7 |
| 2. E2 | 5. E5 | 8. E8 |
| 3. E3 | 6. E6 | 9. E9 |

47. What is your current MOS? \_\_\_\_\_

**ARMY APPRENTICESHIP PROGRAM (AAP) EXIT SURVEY**

**48. Use the space below to tell us about your experience with the AAP or your recommendations to how the AAP could better serve soldiers?**

**49. Use the space below to tell us about your experience in the Army or about how you feel the Army can better relate to its soldiers?**

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**THIS COMPLETES THE QUESTIONNAIRE.**

**PLEASE LOOK OVER YOUR ANSWERS TO BE SURE YOU HAVE NOT OMITTED ANY  
QUESTIONS THAT APPLIED TO YOU.**

**THANK YOU FOR YOUR COOPERATION AND ASSISTANCE.**

**APPENDIX D. TRANSFORMING CATEGORICAL RESPONSES TO INTERVAL SCALE**

## APPENDIX D. TRANSFORMING CATEGORICAL RESPONSES TO INTERVAL SCALE

The ten step procedure for constructing interval scales from categorical responses is:

1. Arrange the raw frequency data in a table where the rows are scenarios (instances) and the columns are categories. Columns should be in rank order with the least favorable category in the left column and the most favorable in the right column.
2. Compute the relative cumulative frequencies for each row and record these values in a new table. This table is referred to as the P array and all values of  $p_{ij} \geq 0.98$  and  $p_{ij} \leq 0.02$  are removed. This creates an  $n \times (m - k)$  array, where  $k$  is the number of columns removed.
3. Treating these  $p_{ij}$  values as leftward areas under a Normal (0,1) curve, look up the values of  $Z$  from a table of the normal distribution. Record these as a new table which will be the  $Z = ||z_{ij}||$  array for the computations that follow.
4. For each instance,  $i$ , in the  $Z$  array, compute the row average,  $\bar{z}_i$ .
5. For each column  $j$  in the  $Z$  array, compute the column average,  $b_j$ . Note that  $b_j$  is the value of the upper bound of category  $j$  on the scale being developed.
6. Compute the grand average,  $\bar{b}$ , of all values of the  $Z$  array.
7. Compute  $B = \sum_i^m (b_i - \bar{b})^2$ , the sum of squared column differences.
8. For each row compute  $A_i = \sum_{j=1}^m (z_{ij} - \bar{z}_i)^2$ , the sum of squared individual differences.
9. For each scenario compute  $\sqrt{\frac{B}{A_i}}$ , an estimate of  $\sqrt{\sigma_i^2 + c}$ .
10. Finally for each row (scenario) compute  $S_i = \bar{b} - \bar{z}_i \times \sqrt{\frac{B}{A_i}}$ , for all  $i$ .

These  $S_i$ 's are the scale values of the instances, on the same interval scale as the category bounds,  $b_j$ . Now all instances and category bounds are on the desired scale and any linear transformation  $Y = \alpha + \beta \times X$ ,  $\beta > 0$ , may now be performed to adjust the scale as desired, using the same transformation to move both scenarios and category bounds. [Ref. 7: pp. 14-15.]

The remainder of this appendix shows the steps used to transform the categorical responses to an interval scale.

In order to better understand the concept of converting categorical judgments into interval scales, the following paragraphs will explain the process. Raw data is first gathered that a category was chosen. The least desirable category appears in the leftmost column. The letter categories correspond to the following:

- A = VERY IMPORTANT
- B = IMPORTANT
- C = SOMEWHAT IMPORTANT
- D = NOT IMPORTANT
- E = NOT AT ALL IMPORTANT

The first part of step 1 is to record the raw frequencies (table 1).

TABLE 1. RELATIVE RESPONSES

AAP ENTRY						AAP EXIT						NOT AAP						
NOT IMPORTANT		IMPORTANT				NOT IMPORTANT		IMPORTANT				NOT IMPORTANT		IMPORTANT				
QUESTION	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	TOTAL		
7 A	7	17	60	91	78	253	2	3	23	42	31	101	16	25	67	89	89	286
7 B	7	3	17	79	150	256	0	2	7	36	54	99	14	12	40	101	118	285
7 C	96	54	48	36	19	253	33	23	17	15	11	99	129	63	37	29	28	286
7 D	67	42	62	43	40	254	19	15	25	19	22	100	59	43	64	65	56	287
7 E	58	52	51	49	45	255	18	13	20	26	22	99	62	60	54	55	54	285
7 F	124	48	33	25	26	256	39	20	18	11	10	98	147	58	30	18	30	283
7 G	105	43	45	33	27	253	28	18	15	22	16	99	95	49	53	49	38	284
7 H	72	40	55	56	32	255	21	14	28	17	17	97	88	53	60	47	37	285
7 I	48	37	57	72	41	255	16	14	20	30	18	98	45	46	74	67	54	286
7 J	144	67	16	19	29	255	59	12	13	7	7	98	181	46	22	20	15	284
7 K	29	14	25	54	135	257	12	4	25	23	43	107	63	40	57	55	72	287
7 L	103	58	41	26	25	253	50	16	15	12	5	98	151	51	41	18	22	283
7 M	44	25	32	54	100	255	16	8	7	25	42	98	48	24	24	47	141	284
8	9	17	51	128	54	259	2	14	16	54	19	105	22	36	75	117	45	295
9 A	3	12	38	96	109	258	1	4	16	41	42	104	16	17	68	97	99	295
9 B	0	20	53	91	93	257	3	12	31	33	26	103	29	39	83	90	54	295
9 C	3	10	39	68	139	259	2	14	19	33	34	102	37	32	74	69	83	295
10	13	40	108	59	40	260	14	20	23	27	21	105	53	51	88	52	46	290
25 A	4	3	16	50	178	251	3	5	13	27	51	99						
25 B	12	22	42	70	105	251	12	12	19	27	29	99						
25 C	12	17	52	66	102	249	13	13	23	30	19	98						
25 D	9	14	56	83	87	249	7	15	28	22	26	98						
25 E	10	18	53	75	93	249	7	15	22	28	26	98						
25 F	2	2	26	55	168	251	2	5	9	26	56	98						
31	1	1	65	93	67	227	11	7	35	31	16	100						
32	21	7	73	60	51	212	21	13	33	20	11	98						
33	3	3	30	82	127	265	15	16	25	28	17	101						

The second part of step 1 is to divide the frequencies by the total number of survey respondents who answered the survey questions to determine the relative frequencies (Table 2).

TABLE 2. RELATIVE FREQUENCIES

AAP ENTRY						AAP EXIT						NOT AAP						
NOT IMPORTANT			IMPORTANT			NOT IMPORTANT			IMPORTANT			NOT IMPORTANT			IMPORTANT			
	A	B	C	D	E		A	B	C	D	E		A	B	C	D	E	
QUESTION	TOTAL					TOTAL						TOTAL						TOTAL
7 A	0.03	0.07	0.24	0.36	0.31	1.00	0.02	0.03	0.23	0.42	0.31	1.00	0.06	0.09	0.23	0.31	0.31	1.00
B	0.03	0.01	0.07	0.31	0.59	1.00	0.00	0.02	0.07	0.36	0.55	1.00	0.05	0.04	0.14	0.35	0.41	1.00
C	0.38	0.21	0.19	0.14	0.08	1.00	0.33	0.23	0.17	0.15	0.11	1.00	0.45	0.22	0.13	0.10	0.10	1.00
D	0.26	0.17	0.24	0.17	0.16	1.00	0.19	0.15	0.25	0.19	0.22	1.00	0.21	0.15	0.22	0.23	0.20	1.00
E	0.23	0.20	0.20	0.19	0.18	1.00	0.18	0.13	0.20	0.26	0.22	1.00	0.22	0.21	0.19	0.19	0.19	1.00
F	0.48	0.19	0.13	0.10	0.10	1.00	0.40	0.20	0.18	0.11	0.10	1.00	0.52	0.20	0.11	0.06	0.11	1.00
G	0.42	0.17	0.18	0.13	0.11	1.00	0.28	0.18	0.15	0.22	0.16	1.00	0.33	0.17	0.19	0.17	0.13	1.00
H	0.28	0.16	0.22	0.22	0.13	1.00	0.22	0.14	0.29	0.18	0.18	1.00	0.31	0.19	0.21	0.16	0.13	1.00
I	0.19	0.15	0.22	0.28	0.16	1.00	0.16	0.14	0.20	0.31	0.18	1.00	0.16	0.16	0.26	0.23	0.19	1.00
J	0.56	0.18	0.06	0.07	0.11	1.00	0.60	0.12	0.13	0.07	0.07	1.00	0.64	0.16	0.08	0.07	0.05	1.00
K	0.11	0.05	0.10	0.21	0.53	1.00	0.11	0.04	0.23	0.21	0.40	1.00	0.22	0.14	0.20	0.19	0.25	1.00
L	0.41	0.23	0.16	0.10	0.10	1.00	0.51	0.16	0.15	0.12	0.05	1.00	0.53	0.18	0.14	0.06	0.08	1.00
M	0.17	0.10	0.13	0.21	0.39	1.00	0.16	0.08	0.07	0.26	0.43	1.00	0.17	0.08	0.08	0.17	0.50	1.00
N	0.03	0.07	0.20	0.49	0.21	1.00	0.02	0.13	0.15	0.51	0.18	1.00	0.07	0.12	0.25	0.40	0.15	1.00
9 A	0.01	0.05	0.15	0.37	0.42	1.00	0.01	0.04	0.15	0.39	0.40	1.00	0.05	0.06	0.23	0.33	0.34	1.00
B	0.00	0.08	0.21	0.35	0.36	1.00	0.03	0.12	0.30	0.32	0.23	1.00	0.10	0.13	0.28	0.31	0.18	1.00
C	0.01	0.04	0.15	0.26	0.54	1.00	0.02	0.14	0.19	0.32	0.33	1.00	0.13	0.11	0.25	0.23	0.28	1.00
11	0.05	0.15	0.42	0.23	0.15	1.00	0.13	0.19	0.22	0.26	0.20	1.00	0.18	0.18	0.30	0.13	0.16	1.00
~ A	0.02	0.01	0.06	0.20	0.71	1.00	0.03	0.05	0.13	0.27	0.52	1.00						
B	0.05	0.09	0.17	0.28	0.42	1.00	0.12	0.12	0.19	0.27	0.29	1.00						
C	0.05	0.07	0.21	0.27	0.41	1.00	0.13	0.13	0.23	0.31	0.19	1.00						
D	0.04	0.06	0.22	0.33	0.35	1.00	0.07	0.15	0.29	0.22	0.27	1.00						
E	0.04	0.07	0.21	0.30	0.37	1.00	0.07	0.15	0.22	0.29	0.27	1.00						
F	0.01	0.01	0.10	0.22	0.67	1.00	0.02	0.05	0.09	0.27	0.57	1.00						
31	0.00	0.00	0.29	0.41	0.30	1.00	0.11	0.07	0.35	0.31	0.16	1.00						
32	0.10	0.03	0.34	0.28	0.24	1.00	0.21	0.13	0.34	0.20	0.11	1.00						
33	0.01	0.01	0.12	0.33	0.52	1.00	0.15	0.16	0.25	0.28	0.17	1.00						

Step 2 involves determining the cumulative relative frequencies of the array by summing each column with the values of the columns to the left. This table is called the P array (Table 3).

TABLE 3. CUMULATIVE FREQUENCIES

AAP ENTRY					AAP EXIT					NOT AAP							
NOT IMPORTANT		IMPORTANT			NOT IMPORTANT		IMPORTANT			NOT IMPORTANT		IMPORTANT					
A	B	C	D		A	B	C	D		A	B	C	D				
QUESTION	TOTAL				TOTAL					TOTAL							
7 A	0.03	0.09	0.33	0.69	1.00		0.02	0.05	0.28	0.69	1.00		0.056	0.143	0.378	0.689	1.00
8 B	0.03	0.04	0.11	0.41	1.00		0.00	0.02	0.09	0.45	1.00		0.049	0.091	0.232	0.586	1.00
C	0.38	0.59	0.78	0.92	1.00		0.33	0.57	0.74	0.89	1.00		0.451	0.671	0.801	0.902	1.00
D	0.26	0.43	0.67	0.84	1.00		0.19	0.34	0.59	0.78	1.00		0.206	0.355	0.578	0.805	1.00
E	0.23	0.43	0.63	0.82	1.00		0.18	0.31	0.52	0.78	1.00		0.218	0.428	0.618	0.811	1.00
F	0.48	0.67	0.80	0.90	1.00		0.40	0.60	0.79	0.90	1.00		0.519	0.724	0.830	0.894	1.00
G	0.42	0.58	0.76	0.89	1.00		0.28	0.46	0.62	0.84	1.00		0.335	0.507	0.694	0.866	1.00
H	0.28	0.44	0.65	0.87	1.00		0.22	0.36	0.65	0.82	1.00		0.309	0.495	0.705	0.870	1.00
I	0.19	0.33	0.56	0.84	1.00		0.16	0.31	0.51	0.82	1.00		0.157	0.318	0.577	0.811	1.00
J	0.56	0.75	0.81	0.89	1.00		0.60	0.72	0.86	0.93	1.00		0.637	0.799	0.877	0.947	1.00
K	0.11	0.17	0.26	0.47	1.00		0.11	0.15	0.38	0.60	1.00		0.220	0.359	0.557	0.749	1.00
L	0.41	0.64	0.80	0.90	1.00		0.51	0.67	0.83	0.95	1.00		0.534	0.714	0.859	0.922	1.00
M	0.17	0.27	0.40	0.61	1.00		0.16	0.24	0.32	0.57	1.00		0.169	0.254	0.338	0.504	1.00
8	0.03	0.10	0.30	0.79	1.00		0.02	0.15	0.30	0.82	1.00		0.075	0.197	0.451	0.847	1.00
9 A	0.01	0.06	0.21	0.58	1.00		0.01	0.05	0.20	0.60	1.00		0.047	0.105	0.336	0.664	1.00
B	0.00	0.08	0.28	0.64	1.00		0.03	0.15	0.45	0.77	1.00		0.098	0.231	0.512	0.817	1.00
C	0.01	0.05	0.20	0.46	1.00		0.02	0.16	0.34	0.67	1.00		0.125	0.234	0.485	0.719	1.00
D	0.05	0.20	0.62	0.85	1.00		0.13	0.32	0.54	0.80	1.00		0.183	0.359	0.662	0.841	1.00
A	0.02	0.03	0.09	0.29	1.00		0.03	0.08	0.21	0.48	1.00						
B	0.05	0.14	0.30	0.58	1.00		0.12	0.24	0.43	0.71	1.00						
C	0.05	0.12	0.33	0.59	1.00		0.13	0.27	0.50	0.81	1.00						
D	0.04	0.09	0.32	0.65	1.00		0.07	0.22	0.51	0.73	1.00						
E	0.04	0.11	0.33	0.63	1.00		0.07	0.22	0.45	0.73	1.00						
F	0.01	0.02	0.11	0.33	1.00		0.02	0.07	0.16	0.43	1.00						
31	0.00	0.01	0.30	0.70	1.00		0.11	0.18	0.53	0.84	1.00						
32	0.10	0.13	0.48	0.76	1.00		0.21	0.35	0.68	0.89	1.00						
33	0.01	0.02	0.15	0.48	1.00		0.15	0.31	0.55	0.83	1.00						

The second part of step 2 is to remove all values of  $p_{ij}$  equal to 0 or 1.

In step 3 the  $p_{ij}$ 's are treated as leftward areas under a Normal (0,1) curve. The value of  $Z$ , taken from a table of the standard distribution, are recorded as a table of the  $Z$  array (Table 5).

TABLE 4. NORMALIZED TABLE

AAP ENTRY				AAP EXIT				NOT AAP								
NOT IMPORTANT		IMPORTANT		NOT IMPORTANT		IMPORTANT		NOT IMPORTANT		IMPORTANT						
	A	B	C	D	A	B	C	D	A	B	C	D				
QUESTION	AVERAGE				AVERAGE				AVERAGE							
7 A	-1.91	-1.31	-0.44	0.50	-0.79	-2.06	-1.65	-0.59	0.50	-0.95	-1.59	-1.07	-0.31	0.49	-0.62	
B	-1.92	-1.76	-1.25	-0.22	-1.29	-3.90	-2.05	-1.34	-0.11	-1.85	-1.65	-1.33	-0.73	0.22	-0.87	
C	-0.31	0.24	0.78	1.44	0.54	-0.43	0.17	0.64	1.22	0.40	-0.12	0.44	0.84	1.29	0.61	
D	-0.63	-0.18	0.45	1.00	0.16	-0.88	-0.41	0.23	0.76	-0.08	-0.82	-0.37	0.20	0.86	-0.03	
E	-0.75	-0.17	0.34	0.93	0.09	-0.91	-0.49	0.04	0.75	-0.15	-0.78	-0.18	0.30	0.88	0.05	
F	-0.04	0.45	0.84	1.27	0.63	-0.26	0.26	0.79	1.27	0.52	0.05	0.60	0.96	1.25	0.72	
G	-0.21	0.21	0.72	1.24	0.49	-0.57	-0.09	0.30	0.99	0.16	-0.43	0.02	0.51	1.11	0.30	
H	-0.58	-0.15	0.40	1.15	0.21	-0.78	-0.36	0.38	0.93	0.04	-0.50	-0.01	0.54	1.13	0.29	
I	-0.88	-0.43	0.14	0.99	-0.05	-0.98	-0.51	0.03	0.90	-0.14	-1.01	-0.47	0.19	0.88	-0.10	
J	0.16	0.67	0.88	1.21	0.73	0.26	0.60	1.07	1.47	0.85	0.35	0.84	1.16	1.62	0.99	
K	-1.21	-0.96	-0.63	-0.06	-0.72	-1.22	-1.04	-0.30	0.25	-0.58	-0.77	-0.36	0.14	0.67	-0.08	
L	-0.24	0.35	0.84	1.29	0.56	0.02	0.45	0.94	1.64	0.76	0.08	0.56	1.07	1.42	0.78	
M	-0.94	-0.61	-0.26	0.27	-0.39	-0.98	-0.69	-0.48	0.18	-0.49	-0.96	-0.66	-0.42	0.01	-0.51	
8	-1.82	-1.28	-0.53	0.81	-0.71	-2.07	-1.03	-0.51	0.91	-0.67	-1.44	-0.85	-0.12	1.03	-0.35	
9 A	-2.27	-1.57	-0.82	0.19	-1.12	-2.34	-1.66	-0.84	0.24	-1.15	-1.67	-1.25	-0.42	0.42	-0.73	
B	0.00	-1.42	-0.57	0.35	-0.41	-1.89	-1.06	-0.13	0.73	-0.59	-1.29	-0.74	0.03	0.90	-0.28	
C	-2.27	-1.64	-0.84	-0.09	-1.21	-2.06	-1.01	-0.40	0.43	-0.76	-1.15	-0.73	-0.04	0.58	-0.33	
D	-1.65	-0.83	0.30	1.02	-0.29	-1.11	-0.46	0.11	0.84	-0.16	-0.90	-0.36	0.42	1.00	0.04	
A	-2.15	-1.91	-1.33	-0.55	-1.49	-1.87	-1.40	-0.80	-0.04	-1.03						
B	-1.67	-1.10	-0.52	0.21	-0.77	-1.17	-0.70	-0.27	0.55	-0.40						
C	-1.66	-1.19	-0.45	0.23	-0.77	-1.11	-0.63	0.00	0.85	-0.22						
D	-1.80	-1.33	-0.48	0.39	-0.81	-1.47	-0.76	0.03	0.63	-0.39						
E	-1.75	-1.21	-0.45	0.32	-0.77	-1.47	-0.76	-0.13	0.63	-0.43						
F	-2.41	-2.15	-1.22	-0.44	-1.56	-2.05	-1.47	-0.98	-0.18	-1.17						
31	-2.62	-2.38	-0.54	0.53	-1.25	-1.23	-0.92	0.08	0.99	-0.27						
32	-1.29	-1.12	-0.06	0.70	-0.44	-0.79	-0.39	0.48	1.21	0.13						
33	-2.25	-1.97	-1.05	-0.05	-1.33	-1.04	-0.50	0.14	0.96	-0.11						
COL. SUM	-35.1	-24.8	-5.7	14.6	GRAND AVG	SUM	-34.4	-18.6	-1.5	19.5 GRAND AVG	SUM	-0.40	-1.60	-1.60	-0.40 GRAND AVG	
b	-1.30	-0.92	-0.21	0.54		b	-1.27	-0.69	-0.06	0.72	-0.32	b	-0.01	-0.04	-0.04	-0.01 -0.01
COL. MIN:-2.62						-3.90					-1.67				1.62	
COL. MAX:																

Step 4 involves computing the row average,  $\bar{z}_i$ , for each response, i. In step 5, for each category j, compute the column average,  $b_j$ , and note the  $b_j$  is the value of the upper bound of category j on the scale. Step 6 consist of computing the grand average b. The results of these three steps are shown in Table 4.

The next step, step 7,  $B = \sum_{j=1}^{m-k} (b_j - \bar{b})^2$ , the sum of square column differences is as follows:

SUM OF SQUARE COLUMN DIFFERENCES:

$B = 1.975$

$B = 2.198$

$B = 0.002$

In step 8, compute  $B = \sum_{j=1}^{m-k} (z_{ij} - \bar{z})^2$ , the sum of square individual differences (table 5).

TABLE 5. SUM OF SQUARE DIFFERENCE

AAP ENTRY					AAP EXIT					NOT AAP					
NOT IMPORTANT				IMPORTANT	NOT IMPORTANT				IMPORTANT	NOT IMPORTANT				IMPORTANT	
QUESTION	A	B	C	D	TOTAL	A	B	C	D	TOTAL	A	B	C	D	TOTAL
7 A	1.26	0.27	0.13	1.66	3.31	1.23	0.49	0.13	2.10	3.95	0.94	0.20	0.10	1.23	2.47
B	0.40	0.22	0.00	1.14	1.76	4.20	0.04	0.26	3.03	7.53	0.60	0.21	0.02	1.19	2.03
C	0.72	0.09	0.06	0.82	1.68	0.69	0.05	0.06	0.67	1.47	0.54	0.03	0.05	0.46	1.08
D	0.62	0.12	0.08	0.71	1.53	0.65	0.11	0.09	0.70	1.55	0.62	0.11	0.05	0.80	1.58
E	0.70	0.07	0.06	0.71	1.54	0.57	0.11	0.04	0.81	1.54	0.70	0.06	0.06	0.68	1.49
F	0.45	0.03	0.04	0.41	0.94	0.60	0.07	0.08	0.57	1.31	0.44	0.01	0.06	0.29	0.80
G	0.49	0.08	0.05	0.56	1.18	0.53	0.06	0.02	0.69	1.30	0.54	0.08	0.04	0.65	1.31
H	0.62	0.13	0.04	0.89	1.67	0.68	0.16	0.11	0.79	1.76	0.62	0.09	0.06	0.71	1.48
I	0.70	0.15	0.03	1.07	1.95	0.71	0.14	0.03	1.08	1.95	0.82	0.14	0.09	0.97	2.01
J	0.32	0.00	0.02	0.23	0.58	0.35	0.06	0.05	0.38	0.84	0.41	0.02	0.03	0.39	0.86
K	0.25	0.06	0.01	0.43	0.74	0.41	0.21	0.08	0.68	1.39	0.48	0.08	0.05	0.56	1.17
L	0.63	0.04	0.08	0.53	1.29	0.55	0.10	0.03	0.77	1.45	0.49	0.05	0.08	0.41	1.03
M	0.31	0.05	0.02	0.43	0.80	0.24	0.04	0.00	0.45	0.73	0.20	0.02	0.01	0.27	0.50
N	1.26	0.33	0.03	2.30	3.90	1.95	0.13	0.03	2.51	4.61	1.20	0.26	0.05	1.89	3.40
9 A	1.33	0.20	0.09	1.71	3.33	1.42	0.26	0.10	1.93	3.71	0.88	0.27	0.10	1.32	2.57
B	0.17	1.02	0.03	0.58	1.79	1.70	0.22	0.21	1.74	3.86	1.03	0.22	0.09	1.38	2.72
C	1.12	0.18	0.14	1.25	2.70	1.69	0.06	0.13	1.42	3.30	0.66	0.16	0.09	0.84	1.74
11	1.84	0.29	0.35	1.71	4.19	0.91	0.09	0.07	0.99	2.07	0.88	0.16	0.14	0.92	2.11
28 A	0.44	0.18	0.02	0.87	1.52	0.71	0.14	0.05	0.98	1.88					
B	0.81	0.11	0.06	0.96	1.94	0.59	0.09	0.02	0.89	1.59					
C	0.80	0.18	0.10	1.00	2.07	0.79	0.17	0.05	1.15	2.15					
D	0.99	0.28	0.11	1.43	2.80	1.16	0.14	0.18	1.05	2.52					
E	0.96	0.19	0.10	1.19	2.44	1.08	0.11	0.09	1.13	2.40					
F	0.73	0.35	0.11	1.24	2.44	0.77	0.09	0.04	0.98	1.88					
31	1.87	1.26	0.51	3.17	6.82	0.92	0.42	0.12	1.59	3.05					
32	0.72	0.46	0.15	1.31	2.63	0.84	0.27	0.12	1.17	2.41					
33	0.85	0.41	0.08	1.64	2.97	0.86	0.15	0.06	1.14	2.22					

In step 9 an estimate of the standard deviation is computed by taking the square root of  $B/A_i$ . The final step for each row compute:

$$S_i = \bar{b} - \bar{z}_i \times \text{square root of } B/A_i, \text{ for all } i \text{ (Table 6)}$$

TABLE 6. COMPUTED SCALE VALUES

QUESTION	AAP ENTRY SCALE VALUE	AAP EXIT SCALE VALUE	NOT AAP SCALE VALUE
7 A	0.137	0.200	0.083
B	0.891	0.476	0.390
C	-1.053	-0.935	-1.301
D	-0.653	-0.387	-0.435
E	-0.571	-0.299	-0.535
F	-1.387	-1.104	-1.594
G	-1.105	-0.665	-0.843
H	-0.694	-0.517	-0.806
I	-0.426	-0.331	-0.370
J	-1.817	-1.773	-1.978
K	0.696	0.217	-0.367
L	-1.167	-1.361	-1.554
M	0.132	0.339	0.534
8	0.030	-0.030	-0.208
9 A	0.389	0.367	0.168
B	-0.041	-0.051	-0.237
C	0.564	0.117	-0.115
11	-0.273	-0.320	-0.510
28 A	1.221	0.583	
B	0.305	-0.027	
C	0.278	-0.258	
D	0.205	-0.124	
E	0.223	-0.079	
F	0.928	0.728	
31	0.202	-0.254	
32	-0.088	-0.587	
33	0.613	-0.368	

A linear transformation was performed to adjust the scale. The scale values were transformed by setting the upper bound to 2 and the lower bound to -2. This result for solving of two simultaneous equations with two unknowns are shown in table 7.

TABLE 7. MEANS OF SCALE TRANSFORMATION

COLUMNS	A	B	C	D
COLUMN MINIMUM	-2.62000			
COLUMN MAXIMUM				1.44000
COLUMN AVERAGES	-1.29851	-0.91666	-0.21277	0.541851
TRANSFORMED VALUES	-2	-0.32183	0.371647	2
$-2 = a + b(-2.62)$		$b = 0.985221$		
$2 = a + b(1.44)$		$a = 0.581280$		
-----				
$-4 = a + b(-4.06)$				

The transformed values of both the category upper bounds and the scale values of instance are now all on one interval scale.  
 (Table 8)

TABLE 8. TRANSFORMED SCALE VALUES

QUESTION	AAP ENTRY TRANSFORMED SCALE VALUE	AAP EXIT TRANSFORMED SCALE VALUE	NOT AAP TRANSFORMED SCALE VALUE
7 A	0.717	0.778	0.663
B	1.459	1.050	0.965
C	-0.456	-0.340	-0.701
D	-0.062	0.200	0.152
E	0.019	0.287	0.056
F	-0.786	-0.506	-0.989
G	-0.507	-0.074	-0.249
H	-0.103	0.072	-0.213
I	0.161	0.255	0.217
J	-1.209	-1.165	-1.367
K	1.267	0.795	0.219
L	-0.568	-0.760	-0.950
M	0.712	0.916	1.107
8	0.611	0.552	0.376
9 A	0.965	0.943	0.747
B	0.541	0.531	0.348
C	1.137	0.696	0.468
11	0.312	0.266	0.079
28 A	1.784	1.156	
B	0.882	0.554	
C	0.855	0.327	
D	0.783	0.459	
E	0.801	0.503	
F	1.495	1.298	
31	0.781	0.331	
32	0.495	0.003	
33	1.185	0.219	

**APPENDIX E - REFERENCES**

## REFERENCES

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